**CSC 150 – Database Design Test #2 April 8, 2010**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Short Answers – 10 pts each**

Answer all questions in complete sentences.

1. What is Referential Integrity and why is it used?
2. Using the attached tables, identify all of the following:
   1. Parent table(s)
   2. Child table(s)
   3. Foreign Key(s) (Table & Field name)
   4. Are there any tables that are both a Parent table and a Child table? If so, which one(s)?
3. What is an index? Why would an index be used? Why would an index not be used?
4. What does a row function do?
5. How does a function differ from a format?

**SQL Statements – 10 pts each**

Using the attached tables, show the SQL statement for each of the following

1. Add a unique constraint to the **Students** table for the combinations of First\_Name and Last\_Name
2. Assuming that the Cascade Update Related Field option is not in use, show the SQL code necessary to change the ‘MG’ Major\_Code to ‘MA’ in all applicable tables. Explain what each step is doing and the steps have to be in the order they are in.
3. Create a new table called Updated\_Students that does the following:
   1. Selects all of the fields from the Students, except First\_Name and Last\_name
   2. Concatenates First\_Name and Last\_Name into a new field called Student\_Name
   3. Permanently adds the ‘(203) ‘ area code to all pone numbers
   4. Displays the time as well as the date for Enrollment\_Date
   5. And is displayed in order by Major\_Code
4. Using SQL, create a new table named Student\_Grades with the following fields: Student\_ID (text) and Student\_Grade (numeric). As part of the create statement, add the following constraints without naming them:
   1. Make Student\_ID the primary key
   2. If you wanted to add a check constraint to the Student\_Grade field, which option in the Access GUI would you use: Format, Validation Rule, or Validation Text
5. Using SQL, show the code that will do the following to the Students table:
   1. Create a foreign key for the Major\_Code
   2. Create an index for the combination of First\_Name and Last\_Name
   3. Increase the width of the Last\_Name table to 30
   4. Delete the Phone column
   5. Remove the time from the Enrollment\_Date field

**Extra Credit – 5 points each**

1. What is the danger of activating the Cascade Delete Related Records option in the Relationships dialog box?
2. Using the Students table, show the SQL code that will display the number of months that have passed since a student has enrolled.
3. Name at least 5 of the 9 current Supreme Court justices. Bonus of 2 points for the name of the current Chief Justice.

**Students**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Student\_ID \*** | **First\_Name** | **Last\_Name** | **Phone** | **Enrollment\_Date** | **Major\_Code** |
| 0001 | Homer | Simpson | 555-1111 | September 4, 2007 | MK |
| 0002 | Clark | Kent | 555-2222 | August 3, 2008 | MG |
| 0003 | Lois | Lane | 555-3333 | August 31, 2009 | CS |
| 0004 | Stewie | Griffen | 555-4444 | September 1, 2008 | CS |
| 0005 | Lara | Croft | 555-5555 | September 1, 2008 | BU |

**Major\_Codes**

|  |  |
| --- | --- |
| **Major\_Code \*** | **Major** |
| CS | Computer Science |
| BU | Business |
| MG | Management |
| MK | Marketing |

**Student\_Courses**

|  |  |
| --- | --- |
| **Student\_ID \*** | **Course\_ID \*** |
| 0001 | MK 100 |
| 0002 | CS 101 |
| 0002 | MA 201 |
| 0002 | MG 200 |
| 0003 | MA 101 |
| 0004 | CS 150 |
| 0004 | BU 100 |
| 0005 | BU 100 |
| 0005 | CS 101 |

**Courses**

|  |  |
| --- | --- |
| **Course\_ID \*** | **Course** |
| CS 101 | Intro to Computers |
| CS 150 | Database Design |
| MK 100 | Intro to Marketing |
| MA 101 | Intro to Algebra |
| MA 201 | Calculus I |
| BU 100 | Intro to Business |
| MG 200 | Management in the Real World |

**\* Signifies a Primary Key Field**