**CSC 150 – Database Design Test #1 February 25, 2010**

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

**Short Answers (10 points each)** – Answer the following questions in complete sentences.

1. What is a primary key used for in a relational database? What are the rules for using a primary key?
2. What are the two goals for database design?
3. Why should the data in a relational database be normalized?
4. What type of programming language is SQL, Structured Query Language? What does this mean as far as programming with SQL?
5. What are the advantages of basing a query on another query rather than using the query to create a new table?

**SQL Statements (5 points each)** – Using the attached relational database table, write a SQL statement that will answer the following questions.

1. Show the SQL statement which will find all following columns, PR#, last\_name, first\_name, date\_of\_birth, and and pol\_party from the pres\_table for all the presidents who are still alive.
2. Show the SQL statement that would add a row to the table with the following information: PR# = 28, first\_name = Woodrow, last\_name = Wilson, Term\_of\_office = 1913 – 1921, Date\_of\_birth = December 28, 1856, Date\_of\_death = February 3, 1924, Age = 56, Pol\_party = Democrat
3. Show the SQL statement that would remove from the table all of the presidents who were Democrat\_Republicans
4. Show the SQL statement that would change all the presidents who belonged to the Whig party to Republicans.
5. Show the SQL statement that would display the all of the columns for presidents who where over the age of 60 when they assumed office of president and where Federalists or Whig party members
6. Show the SQL statement that would display the PR#, first\_name, last\_name, term\_of\_office, and pol\_party for all of the presidents who were not members of the democrat party. Put the results in ascending order by pol\_party and descending order by last\_name.
7. Assuming that the query in question #11 was saved as all\_pres\_not\_dem, show the SQL statement based on this query that would display all the columns found in all\_pres\_not\_dem of the non-democratic presidents who belonged to the democrat-republican party.
8. Create a new table named democrat\_presidents containing all of columns in the pres\_table that contains just the presidents who were members of the democrat party.

**Results of SQL statements (5 points each)** – Using the attached relational database table, show what the results of the following SQL statements will be.

14)

select pr# as ‘President Number’,

 first\_name,

 last\_name

from pres\_table

where age < 50

 and pol\_party = ‘Democrat’

order by last\_name;

15)

select \*

from pres\_table

where pol\_party in (‘Federalist’, ‘Whig’)

 and first\_name = ‘John’

order by pr#;

16)

select first\_name,

 last\_name,

 date\_of\_death

from pres\_table

where date\_of\_death like ‘july\*’

 or date\_of\_death is null

order by last\_name;

**Extra Credit (5 points each)**

a) What is meant by “three value logic”? Why is this term applied to the results of some SQL statements?

b) What are the two ways to use a single quote, ‘, with in a literal string in a SQL statement when using Access?

c) Who is the only six star general in the U.S. armed Forces? Super special bonus: What year was he made a six star general?

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|  | **First\_Name** | **Last\_Name** | **Term\_of\_Office** | **Date\_of\_Birth** | **Date\_of\_Death** | **Age** | **Pol\_Party** |
| 1 | George | Washington | 1789 - 1797 | February 22, 1732 | December 14, 1799 | 57 | Federalist |
| 2 | John | Adams | 1797 – 1801 | October 30, 1735 | July 4, 1826 | 61 | Federalist |
| 3 | Thomas | Jefferson | 1801 – 1809 | April 13, 1743 | July 4, 1826 | 57 | Democratic-Republican |
| 4 | James | Madison | 1809 – 1817 | March 16, 1751 | June 28, 1836 | 57 | Democratic-Republican |
| 5 | James | Monroe | 1817 – 1825 | April 28, 1758 | July 4, 1831 | 58 | Democratic-Republican |
| 6 | John Quincy | Adams | 1825 – 1829 | July 11, 1767 | February 23, 1848 | 57 | Democratic-Republican |
| 7 | Andrew | Jackson | 1829 – 1837 | March 15, 1767 | June 8, 1845 | 61 | Democrat |
| 8 | Martin | Van Buren | 1837 – 1841 | December 5, 1782 | July 24, 1862 | 54 | Democrat |
| 9 | William Henry | Harrison | 1841 | February 9, 1773 | April 4, 1841 | 68 | Whig |
| 10 | John | Tyler | 1841 – 1845 | March 29, 1790 | January 18, 1862 | 51 | Whig |
| 40 | Ronald | Reagan | 1981 – 1989 | February 6, 1911 | June 5, 2004 | 69 | Republican |
| 41 | George | Bush | 1989 – 1993 | June 12, 1924 |  | 64 | Republican |
| 42 | Bill | Clinton | 1993 – 2001 | August 19, 1946 |  | 46 | Democrat |
| 43 | George  | Bush | 2001 – 2009 | July 6, 1946 |  | 54 | Republican |
| 44 | Barack | Obama | 2009 - ? | August 4, 1961 |  | 47 | Democrat |

**pres\_table**