

CS2 Databases TEST 1

25 August 2003

Student Number: _____

MARK: ____/35

Instructions

- Read the questions carefully
- Answers are to be written on this sheet
- ONLY Ink is to be used, No Pencil
- Marks are shown in []. Max Mark : 35
- Time is 35 Minutes

Section A – Multiple Choice [9 marks]

1. What's wrong with the statement shown below?

```
SELECT * FROM THE TABLE BasicTable
```

Please select the best answer.

- A. The asterisk should be replaced with the SQL key phrase ALL COLUMNS.
- B. THE TABLE is incorrect.
- C. A sort order is not indicated.
- D. The word SELECT should be replaced by DISPLAY.

2. What type of language is SQL?

Please select the best answer.

- A. Instructional
- B. English-like
- C. ANSI-standard
- D. Declarative

3. Which of the following statements are true?

Please select all the correct answers.

- A. Flat file database systems pay more attention to retrieving data and making it accessible to the user, whereas relational databases spend more energy updating indexes and data pointers.
- B. Relational database systems are the main thrust behind SQL since it provides the language elements needed to tie together the information in the database.
- C. Relational systems pay more attention to retrieving data and making it accessible to the user.
- D. In non-relational databases, the information is stored at random and retrieved in an organized manner.

4. Which portion of a database system contains the actual data elements, such as the name, address, or a phone number for a particular person?

Please select the best answer.

- A. Tables
- B. Fields
- C. Rows
- D. Databases

5. Which item below refers to a specific item of information (for example, a last name) within a table?
Please select the best answer.

- A. A column
- B. A row
- C. A table
- D. A database

6. Which of the following statements is incorrect regarding indexes?
Please select the best answer.

- A. Indexes are largely for optimizing the query of a table.
- B. Indexes control the sort order for information in the table.
- C. Indexes provide a logical path for the engine to consider when extracting data from the table.
- D. Indexes are manually created using SQL commands

7. If you want to remove a row from the customer table, what statement will you use?
Please select the best answer.

- A. REMOVE FROM Customer WHERE ...
- B. ERASE FROM Customer
- C. DELETE FROM Customer IF customerID=...
- D. DELETE FROM Customer WHERE customerID=...

8. What does it mean to have a "normalized" database?
Please select the best answer.

- A. All unneeded information has been removed.
- B. The database contains only mainstream information--no abnormal data is included.
- C. It refers to a database table that can be used by SQL.
- D. A database's tables have been set up so that no information is duplicated between tables and key fields offer a reference point between related tables.

9. How do you sort the results of your query?
Please select the best answer.

- A. You indicate the index to use in the SQL statement: SELECT * FROM MyTable INDEX Lastname.
- B. You use the SORT BY clause: SELECT * FROM MyTable SORT BY Lastname.
- C. You use the ORDER BY clause: SELECT * FROM MyTable ORDER BY Lastname.
- D. You use the SORT keyword: SELECT SORT(lastname), * FROM MyTable.

Section B – Short Answer [26 Marks]

Question 1 [2,1,1]

Define the process followed in order to transform data into the following:

- a) First Normal Form
- b) Second Normal Form
- c) Third Normal Form

Question 2 [2]

Distinguish between a primary and a foreign key, giving an example of the use of each.

Question 3 [4]

List the Eight Algebraic operations which can be performed on relational database tables

Question 4 [2, 2]

- a) Briefly discuss the issues related to M:N relationships, and how one handles this with particular reference to E-R Diagrams,
- b) Draw an example to illustrate your discussion

Question 5[1]

What are islands of information?

Question 6 [6]

Normalise the following table into 3NF. Your output should contain example data.

Task ID #	Task Description	Employee ID #	Due Date	Last Name
1	Tutor Meeting	02	02/17/2003	Wynkoop
2	Create budget	02	01/01/2003	Wynkoop
3	Exam Timetable	01	02/09/2003	Smith
4	Set Exams	02	02/01/2003	Wynkoop

Question 7 [3]

Discuss the difference between Numeric and other floating point data types, giving examples of their use where appropriate

Question 8 [1]

Why is the correct and appropriate choice of data types important when designing and implementing a relational DB?

Question 9 [1]

What are Flags and how can they be used in a relational DB