Database Design, CSCI 340, Spring 2015
1st Midterm, Feb. 20

Multiple-Choice
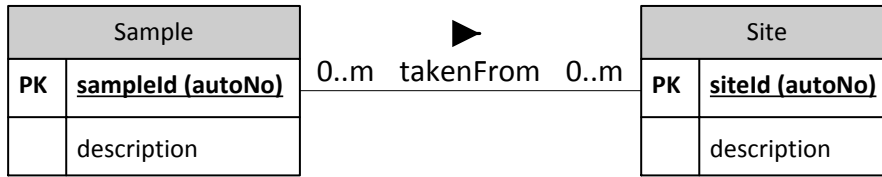
1. Which SQL statement limits the records which appear in the query results?
   (3 pts.)
   a. DISTINCT
   b. LIKE
   c. SELECT
   d. FROM
   e. WHERE

2. Which of the following is equivalent to a "tuple"? (3 pts.)
   a. attribute
   b. record
   c. relation
   d. constraint
   e. schema

3. The attributes in a relation are part of the relation's: (3 pts.)
   a. intension
   b. extension

4. Which of the following is not part of the vocabulary of database keys? (3 pts.)
   a. Composite key
   b. Primary key
   c. Referential key
   d. Candidate key
   e. Foreign key

5. Given the following relationship:

Sample		Site	
	Sample		Site
PK	sampleId (autoNo)	0..m takenFrom 0..m	PK	siteId (autoNo)
	description			description

The first 0 (the leftmost 0, next to the Sample relation) most closely indicates that:

(3 pts.)

   a. A sample must have come from a site.
   b. A sample may have no relationship with a site.
   c. A sample may not have been taken from any site
   d. A site may have no relationship with a sample
   e. A site may not have any sample taken from it

Short Answer

6. Give an example of two items where the first item can be changed and, due to logical data independence, the second item will not need to be change.   (5 pts.)

7. For what does FERPA stand?   (5 pts.)

8. One of the services typically provided by a DBMS is transaction support. Describe what is meant by transaction support and why it is important.   (5 pts.)

9. Casa Grande is a condominium complex on the Florida shore with several high-rise buildings. Buildings are identified by a unique building number. They also have a building name and a street address.

   Each Casa Grande building contains between 24 and 30 condominiums (apartments). Condominiums are identified by a combination of the building number and the condominium unit number. Several people often own the same condominium. Casa Grande keeps track of the owners' name, address and phone number. Note that condominium owners often do not live in the condominium.

   Imagine that you are responsible for developing a database application for Casa Grande. Begin by developing a conceptual model for it. This model should show primary key with {PK} and partial primary keys with a {PPK}, relationships, and minimum and maximum cardinalities on those relationships. Name all relationships and indicate how to interpret the name via a triangular arrow ► and ◄. Since this is a conceptual model not a logical model, foreign keys and join tables should not be included in the diagram.

   (10 pts.)
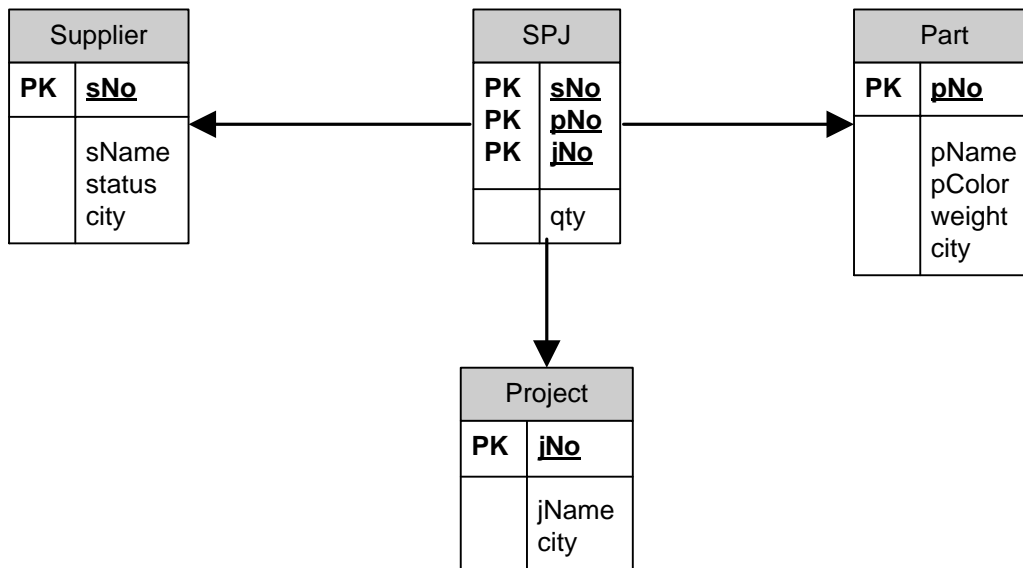
   Give a referential constraint on this system.   (2 pts.)

   Give a possible general constraint.   (3 pts.)

Queries (written without a computer)

Suppliers-Parts-Project
Database

Supplier	
PK	**sNo**
	sName status city

SPJ	
PK **PK** **PK**	**sNo** **pNo** **jNo**
	qty

Part	
PK	**pNo**
	pName pColor weight city

Project	
PK	**jNo**
	jName city

10. Give a query which displays the name and status of all Paris suppliers.   (5 pts.)

11. Give a query which lists the supplier number, part number and project number for those suppliers which supply a part to a project, where the projects are located in Athens.   (5 pts.)

12. Give a query which lists the name of each supplier along with the total number of parts which the supplier supplies to any project.

Sample output:

Supplier Name	Number of Parts
Adam	2600
Baker	0
Blake	300
Clark	300
Jones	3100
Smith	900

(5 pts.)

13. Write a query which could be used to create the supplier table S.   (5 pts.)

14. Write a query to insert a new record into the S table. Make up data to go into this table.   (5 pts.)

Extra credit:

15. What MySQL command is used to see the tables in the current database?
    a. DESCRIBE DATABASE   (3 pts.)
    b. DESCRIBE TABLES
    c. LIST TABLES
   d. SHOW TABLES
    e. SHOW DATABASE TABLES

Database Design, CSCI 340, Spring 2015
Exam 1, Computer Portion, Feb. 20

Please turn in the first portion of the exam before beginning this portion. To complete this portion of the exam you may use your notes, any previous assignments, the text and/or the Internet. You may not communicate with anyone other than myself during this exam.

You can use either SQLServer or MySQL for this exam.

Write queries for the following. Remember that your query must work for any extension of the database, not just the current extension.

Suppliers-Parts-Project
Database
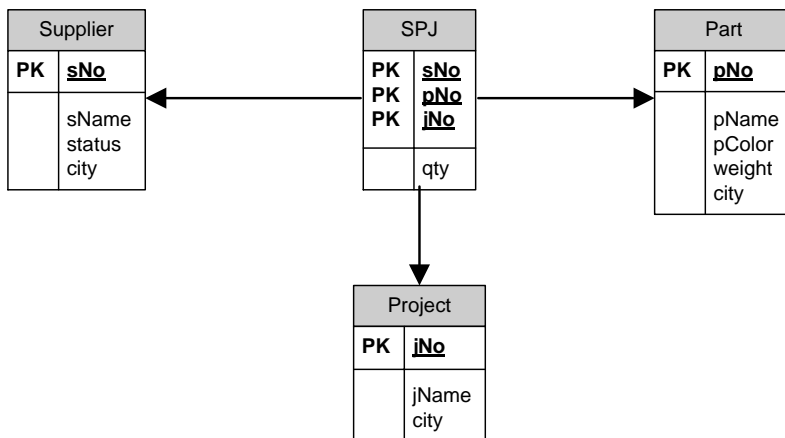
16. Give a query which displays the name and status of all Paris suppliers.   (5 pts.)

17. Give a query which lists the supplier number, part number and project number for those suppliers which supply a part to a project, where the projects are located in Athens.   (5 pts.)

18. Give a query which lists the name of each supplier along with the total number of parts which the supplier supplies to any project.

   Sample output:

Supplier Name	Number of Parts
Adam	2600
Baker	0
Blake	300
Clark	300
Jones	3100
Smith	900

   (5 pts.)

19. Give a query which lists the name of all suppliers who supply at least 1000 parts to some project.   (5 pts.)

20. Using the database created for you, write the DDL query to create a table called Class which contains a class prefix (CHAR(4), example CSCI), number (CHAR(3), example 340), name (CHAR(30), example Database Design), semester (CHAR(4), example Sp15), and score (FLOAT, example 96.33). Make the combination of the prefix and number be the key of the table.

   (5 pts.)

21. Write a query to place a record into the Class table. Use the example values given.
(5 pts.)

Extra Credit

Get the name of all parts whose only supplier is S005. (5 pts.)

Sample output:

pName
Bolt
Screw