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LAST NAME FIRST NAME

**CS 4400 - SUMMER 2015 QUIZ 1**

**Circle Correct Answer**

(1) A B C D

(2) A B C D

(3) A B C D

(4) A B C D

(5) A B C D

(6) A B C D

(7) A B C D

(8) A B C D

(9) A B C D

(10) A B C D

(11) A B C D

(12) A B C D

(13) A B C D

(14) A B C D

(15) A B C D

(16) A B C D

(17) A B C D

(18) A B C D

(19) A B C D

(20) A B C D

(21) A B C D

(22) A B C D

(23) A B C D

(24) A B C D

(25) A B C D

(26) A B C D

(27) A B C D

(28) A B C D

(29) A B C D

(30) A B C D

(31) A B C D

(32) A B C D

(33) A B C D

**Figure1. Tutor EER Diagram (For Questions 16-33)**

Student

Professor

Undergrad

Grad

N

M

Recommends

1

N

Hires

Tutor

M

M

N

Qualified For

Course

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ GTID \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**CS 4400 - Summer 2015 QUIZ 1**

1. The internal schema of a database represents

(a) the entire database in terms of entities and relationships

(b) the physical storage structure details of the database

(c) the part of the database that is of interest to a particular end user

(d) the part of the database that is seen by application programmers

2. Which of the following are examples of metadata for a database?

1. constraints on data values
2. names and locations of files that store the data
3. names of authorized database users
4. all of the above

3. Data abstraction is a key feature in being able to provide which of the following in a database system?

(a) physical data independence

(b) logical data independence

(c) both (a) and (b)

(d) none of the above

4. Which of the following are associated with the Entity Relationship model?

(a) using an entity type to represent real world objects

(b) having a key attribute for an entity type

(c) relating two entity types with a many to many relationship type

(d) all of the above

5. Which of the following statements is true?

(a) A databasehas no associated data model

(b) A database stateis the actual data that corresponds to a particular database schema

(c) A query language is never used by a database application programmer

(d) All of the above.

6. Which of the following is an example of the goal of the three schema database architecture?

(a) Being able to store data persistently.

(b) Being able to write a query on a database without having to know the underlying physical details of

the database.

(c) Being able to validate data in the database.

(d) Being able to use the Entity Relationship model to represent the external schema.

7. Does the query optimizer of a relational DBMS need access to metadata?

(a) yes

(b) no

8. Suppose the DBA changes a data constraint associated with the conceptual database schema. If the queries on our external schema still work correctly after this change, then we could say that this is an example of which of the following?

(a) file independence

(b) physical data independence

(c) logical data independence

(d) query independence

9. Which of the following statements is true?

(a) Relationships are not represented in a database.

(b) Data consistency is not important in a database.

(c) Query optimization is important in a DBMS.

(d) Knowing physical storage structure details is important for every user that interacts with a DBMS.

10. A view in a DBMS may be considered

1. a subset of the database
2. virtual data that is derived from the database
3. Both (a) and (b)
4. None of the above

11. The Relational data model can be classified as which of the following?

1. An object oriented data model that has inheritance and persistence
2. a representational data model
3. a physical data model
4. an entity relationship model

12. Is the following statement true or false? The entire database design process can be done without any knowledge of the specific database management system that will be used.

1. true
2. false

13. Is the following statement true or false? In the 3 schema database architecture, a request at a higher schema level must be mapped to a request at a lower schema level.

1. true
2. false

14. Which of the following is an example of a data integrity constraint?

1. the GPA of a student must be ≥ 0 and ≤ 4.0
2. every student must have a unique value for his/her student ID
3. a full time student must be enrolled for at least 12 credit hours per semester
4. all of the above

15. Which of the following activities are performed by a database administrator?

1. Authorizing access to the database
2. Monitoring database usage
3. Optimizing the physical database organization
4. all of the above

**Use the EER Diagram in Figure 1 for questions 16 through 33.**

1. Is there any super class/subclass relationship type that requires total participation by all entity types involved in the relationship?
   1. yes
   2. no

1. How many weak entity types are there in the EER diagram?
   1. 0
   2. 1
   3. 2
   4. 3
2. How many entity types have a composite attribute for its key?
   1. 0
   2. 1
   3. 2
   4. 3
3. What is the key for the Tutor entity type?
   1. Email
   2. SID
   3. either (a) or (b)
   4. It has no key
4. Can a Grad Student hire a Tutor?
   1. yes
   2. no
5. Is every Grad student required to be a Tutor?
   1. yes
   2. no
6. Is every Tutor a Grad Student?
   1. yes
   2. no
7. How many instances of the Course entity type can participate in one instance of the Hires relationship?
   1. 0
   2. exactly 1
   3. 1 or more
   4. more than 2
8. Does a Tutor have to be Qualified for a Course that they are hired to tutor?
   1. yes
   2. no
9. Can a Professor Recommend the same Tutor multiple times?
10. yes
11. no
12. If there are 20 instances of Tutor and 50 instances of Course then the maximum number of instances of Course that have a Qualified Tutor is which of the following?
    1. 1
    2. 20
    3. 50
    4. 1000
13. If there are 100 instances of Student and 20 instances of Grad, then what is the minimum number of instances of Tutor that must participate in Hires?
14. 1
15. 20
16. 80
17. 100
18. If there are 10 instances of Professor, then what is the minimum number of instances of Recommends that must exist?
19. 0
20. 1
21. 10
22. Cannot determine without knowing the number of instances of Tutor
23. Can an Undergrad Hire more than 1 Tutor for the same Course?
24. yes
25. no
26. Which of the following are true statements?
27. There may be a Tutor who is not Hired.
28. There may be a Course without a Tutor.
29. There may be a Tutor who is not Recommended by a Professor.
30. All of the above
31. Which attribute is a derived attribute?
32. Name
33. Degree
34. Total cost
35. SID
36. Which of the following are true statements?
37. Degree is a multi-valued attribute.
38. The value for Comments must not be the same for the any two Professors.
39. The value for Phone must not be the same for the any two Professors.
40. All of the above
41. Which attribute is a composite attribute?
42. Name
43. Degree
44. Total cost
45. Comments