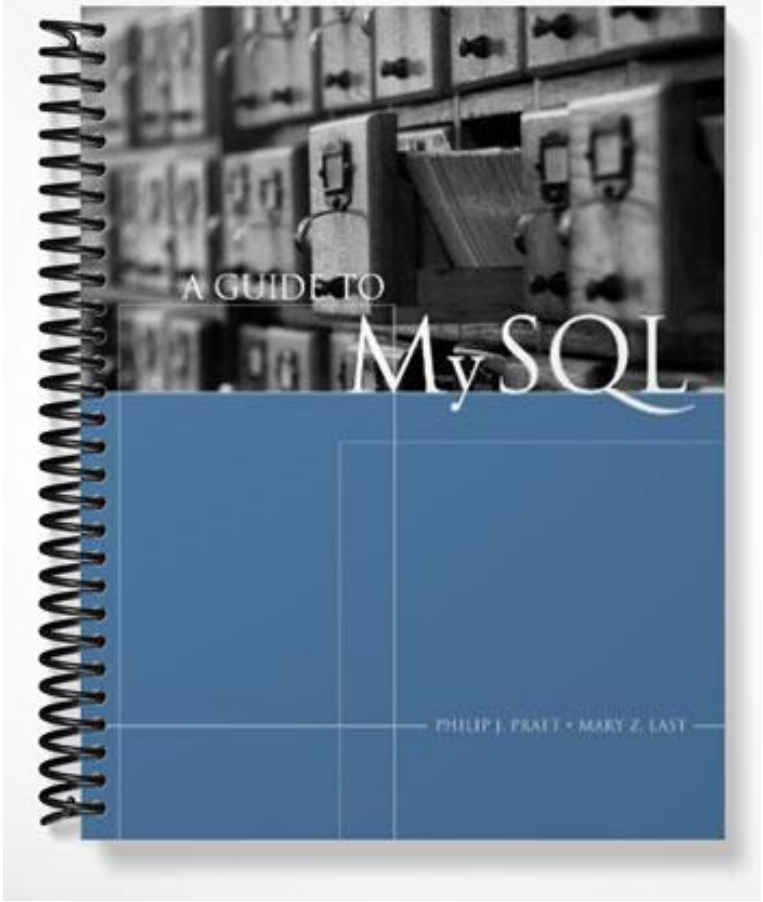
TEST BANK



Ch02

True/False
Indicate whether the sentence or statement is true or false.

____ 1. Tables are called relations.

____ 2. Each column in a table of a relational database should have a distinct name.

____ 3. In the one-to-many type of relationship, the word many always indicates a large number.

____ 4. In a relation, all values in a column are values of the same attribute.

____ 5. A(n) relation is a characteristic or property of an entity.

____ 6. A relation is essentially a(n) three-dimensional table.

____ 7. Columns are sometimes called tuples.

____ 8. You usually indicate a table's primary key by underlining the column or collection of columns that comprises the primary key for each table in the database.

____ 9. The process of determining the particular tables and columns that will comprise a database is known as normalization.

____ 10. A tabular database is a collection of tables.

____ 11. Because there is a one-to-many relationship between sales reps and customers in the Premiere Products database, one sales rep can be associated with zero, one, or more customers.

____ 12. In a relational database, each entity has its own table.

____ 13. In a relational database, relationships are implemented by having common columns in two or more tables.

____ 14. In a relational database, two columns can be identical.

____ 15. The concept of functional dependence is trivial to understanding database concepts.

____ 16. The same column name can appear in two different tables in a relational database.

____ 17. You can determine functional dependence by viewing sample data.

____ 18. The statement "A sales rep's pay class functionally determines his or her pay rate" means that if you know the pay class, you also know the pay rate.

____ 19. A secondary key is the unique identifier for a table.

____ 20. A primary key always comprises a single column

____ 21. The definition for a primary key really defines a candidate key as well.

____ 22. Many organizations and institutions are moving toward using Social Security numbers as primary keys because of privacy issues.

____ 23. If a table contained both employee numbers and Social Security numbers, both columns would be referred to as candidate keys.

____ 24. A programmer interviews users, examines existing and proposed documents, and examines organizational policies to determine exactly the type of data needs the database must support.

____ 25. It is possible for the computer to generate values that are used as the primary key column.

____ 26. Normalization is done before creating the database design.

____ 27. An unnormalized relation is a relation that contains repeating groups.

____ 28. When you convert an unnormalized table to a table in first normal form, the primary key of the table in first normal form is usually the concatenation of at least two columns.

____ 29. Qualification is an update anomaly.

____ 30. A table is in third normal form if it is in second normal form and no nonkey column is dependent on only a portion of the primary key.

____ 31. A determinant is any column (or collection of columns) that determines another table.

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question.

____ 32. A(n) ____ is a characteristic or property of an entity.
a. field
b. attribute
c. column
d. All of the above

____ 33. At Premiere Products, there is a ____ relationship between sales reps and customers.
a. one-to-one
b. one-to-two
c. one-to-many
d. many-to-many

____ 34. In a relational database each ____ should be unique.
a. row
b. record
c. tuple
d. All of the above

____ 35. There is a commonly accepted shorthand representation to show the structure of a relational database: After the name of the table, all the columns in the table are listed within a set of ____.
a. square brackets
b. parentheses
c. back slashes
d. curly braces

____ 36. Which of the following symbols is used to qualify column names?
a. .
b. ,
c. /
d. #

____ 37. Which of the following is the primary key of the ORDER_LINE (<u>ORDER_NUM</u>, <u>PART_NUM</u>, NUM_ORDERED, QUOTED_PRICE) table?
a. <u>ORDER_NUM</u>
b. <u>PART_NUM</u>
c. QUOTED_PRICE
d. <u>ORDER_NUM</u> and <u>PART_NUM</u>

____ 38. The process of determining the particular tables and columns that will comprise a database is known as ____.
a. normalization
b. database design
c. qualification
d. relational management

____ 39. A(n) ____ is the association between entities.
a. qualification
b. functional dependency
c. relationship
d. join

____ 40. Any column (or collection of columns) that determines another column is called a(n) ____.
a. nonkey column
b. primary key
c. dependency
d. determinant

____ 41. In an entity-relationship (E-R) diagram, ____ are used to represent an entity.
a. rectangles
b. ovals
c. circles
d. diamonds

____ 42. In an entity-relationship (E-R) diagram, one-to-many relationships between entities are drawn as ____ .

a. ovals
b. equal signs
c. lines
d. circles

____ 43. ____ is the duplication of data.
a. Repeating group
b. Redundancy
c. Replication
d. Anomaly

____ 44. A relation is in ____ if it does not contain any repeating groups.
a. first normal form
b. second normal form
c. third normal form
d. Boyce-Codd normal form

____ 45. In this text, Boyce-Codd normal form is the same as ____.
a. unnormalized
b. first normal form
c. second normal form
d. third normal form

____ 46. A ____ column is a column that is not part of the primary key.
a. determinant
b. candidate
c. functional
d. nonkey

____ 47. A field is another term for a(n) ____.
a. tuple
b. row
c. column
d. entity

____ 48. A record is another term for a(n) ____.
a. tuple
b. field
c. attribute
d. property

____ 49. ____ is the formal term for combining two or more columns to form a primary key.
a. Qualification
b. Joining
c. Normalization
d. Concatenation

____ 50. ____ is one of the categories of update anomalies.
a. Functional dependence
b. Functional splitting
c. Inconsistent data
d. Qualification

____ 51. ____ can occur when there is a column in a table that is dependent on only a portion of the primary key.
a. Qualification
b. Update anomalies
c. Function splitting
d. Determination

Completion
Complete each sentence or statement.

52. A(n) _____ is a person, place, object, event, or idea for which you want to store and process data.

53. A(n) _____ is the association between entities.

54. A table's design should be as simple as possible; you should restrict each position in a table to a single entry by not allowing multiple entries (called a(n) _____ group) in an individual location in the table.

55. A relational database is a collection of _____.

56. When you combine a column name with a table name, you are said to _____ the column name.

57. The _____ key of a table (relation) is the column or collection of columns that uniquely identifies a given row in that table.

58. A(n) _____ column is a column that is not part of the primary key.

59. _____ is another name given to third normal form in this text.

60. In one style of entity-relationship (E-R) diagrams, a crow's foot is used to represent the _____ side of a relationship.

61. In one style of entity-relationship (E-R) diagrams, the letter n is used to represent the _____ side of a relationship.

62. In one style of entity-relationship (E-R) diagrams, diamonds are used to describe _____.

63. The four categories of update anomalies are additions, deletions, inconsistent data, and _____.

64. If the primary key of a table contains only a single column, the table is automatically in _____ normal form.

65. If B is functionally dependent on A, you also can say that A functionally _____ it.

66. A(n) _____ is another name for a record or a row.

67. When you write a column in the format CUSTOMER.REP_NUM, you say that you _____ the column name.

68. In a relational database, column B is _____ on another column A, it at any point in time a value for A determines a single value for B.

69. A relation is in _____ normal form if it does not contain any repeating groups.

70. In a relation, the order of the rows and columns is _____

71. A relationship is an association between _____.

Essay

72. How does a DBMS that follows the relational model handle entities, attributes of entities, and relationships between entities?

73. Define a relation.

74. What are the six steps necessary to design a database for a set of requirements?

75. What is the precise definition of a primary key?

Ch02
Answer Section

TRUE/FALSE

1. ANS: T REF: 30
2. ANS: T REF: 30
3. ANS: F REF: 29
4. ANS: T REF: 29
5. ANS: F REF: 28
6. ANS: F REF: 30
7. ANS: F REF: 31
8. ANS: T REF: 35
9. ANS: F REF: 25
10. ANS: F REF: 26
11. ANS: T REF: 29
12. ANS: T REF: 29
13. ANS: T REF: 29
14. ANS: F REF: 29
15. ANS: F REF: 31
16. ANS: T REF: 31
17. ANS: F REF: 33
18. ANS: T REF: 32
19. ANS: F REF: 34
20. ANS: F REF: 34-35
21. ANS: T REF: 36
22. ANS: F REF: 36
23. ANS: T REF: 36
24. ANS: F REF: 36
25. ANS: T REF: 36
26. ANS: F REF: 43
27. ANS: T REF: 43
28. ANS: T REF: 45
29. ANS: F REF: 46-47
30. ANS: F REF: 50
31. ANS: F REF: 50

MULTIPLE CHOICE

32. ANS: D REF: 31
33. ANS: C REF: 29
34. ANS: D REF: 30-31
35. ANS: B REF: 31
36. ANS: A REF: 31
37. ANS: D REF: 35
38. ANS: B REF: 25

39. ANS: C REF: 28
40. ANS: D REF: 50
41. ANS: A REF: 54
42. ANS: C REF: 54
43. ANS: B REF: 46
44. ANS: A REF: 44
45. ANS: D REF: 50
46. ANS: D REF: 47
47. ANS: C REF: 31
48. ANS: A REF: 31
49. ANS: D REF: 33
50. ANS: C REF: 46
51. ANS: B REF: 47

COMPLETION

52. ANS: entity

    REF: 28
53. ANS: relationship

    REF: 28
54. ANS: repeating

    REF: 29
55. ANS: relations

    REF: 30
56. ANS: qualify

    REF: 31
57. ANS: primary

    REF: 34
58. ANS: nonkey

    REF: 47
59. ANS:
    Boyce-Codd
    BCNF

    REF: 50
60. ANS: many

    REF: 55
61. ANS: many

    REF: 55

62. ANS: relationships

    REF: 55
63. ANS: updates

    REF: 46-47
64. ANS: second

    REF: 47
65. ANS: determines

    REF: 32
66. ANS: tuple

    REF: 31
67. ANS: qualify

    REF: 31
68. ANS: functionally dependent

    REF: 32
69. ANS:
    first
    1NF

    REF: 44
70. ANS: immaterial

    REF: 30
71. ANS: entities

    REF: 28

ESSAY

72. ANS:
    Entities and attributes are fairly simple. Each entity has its own table. The attributes of an entity become the columns in the table. In a relational model database a one-to-many relationship is represented by using common columns in two or more tables. More formally, a relation is essentially a two-dimensional table. Each column in a table should have a unique name, and entries within each column should all "match" this column name. Also, each row (also called a record or a tuple in some programs) should be unique. After all, if two rows in a table contain identical data, the second row doesn't provide any information that you don't already have. In addition, for maximum flexibility in manipulating data, the order in which columns and rows appear in a table should be immaterial. Finally, a table's design should be as simple as possible; you should restrict each position in a table to a single entry by not allowing multiple entries (called a repeating group) in an individual location in the table.

    REF: 28-29
73. ANS:

A relation is a two-dimensional table in which:
1. The entries in the table are single-valued; that is, each location in the table contains a single entry.
2. Each column has a distinct name (technically called the attribute name).
3. All values in a column are values of the same attribute (that is, all entries must match the column name).
4. The order of columns is immaterial.
5. Each row is distinct.
6. The order of rows is immaterial.

REF: 30

74. ANS:
    1. Read the requirements, identify the entities (objects) involved, and name the entities.
    2. Identify the unique identifiers for the entities identified in step 1.
    3. Identify the attributes for all the entities.
    4. Identify the functional dependencies that exist among the attributes.
    5. Use the functional dependencies to identify the tables by placing each attribute with the attribute or minimum combination of attributes on which it is functionally dependent.
    6. Identify any relationships between tables.

    REF: 36-37

75. ANS:
    Column A (or a collection of columns) is the primary key for a table if:
    Property 1: All columns in the table are functionally dependent on A.
    Property 2: No subcollection of the columns in A (assuming A is a collection of columns and not just a single column) also has property 1.

    REF: 34