Chapter 1: Introduction to Database Management

TRUE/FALSE

1. Redundancy wastes space because you are storing the same data in more than one place.

   ANS: T   PTS: 1   REF: 2

2. A spreadsheet's data-sharing features allows multiple employees to update data in one spreadsheet at the same time.

   ANS: F   PTS: 1   REF: 2-3

3. An attribute is a characteristic or property of an entity.

   ANS: T   PTS: 1   REF: 4

4. A relationship is an association between attributes.

   ANS: F   PTS: 1   REF: 5

5. A database will not only hold information about multiple types of entities, but also information about the relationships among these multiple entities.

   ANS: T   PTS: 1   REF: 5

6. In a database, each entity has its own table.

   ANS: T   PTS: 1   REF: 5

7. The attributes of an entity become the rows in the table

   ANS: F   PTS: 1   REF: 5

8. In an entity-relationship (E-R) diagram, rectangles represent entities and lines represent relationships between connected entities.

   ANS: T   PTS: 1   REF: 9

9. Programs created with Visual Basic, Java, Perl, PHP, or C++ can access the database directly, rather than having to access it through the DBMS.

   ANS: F   PTS: 1   REF: 10

10. Sharing data is one advantage of database processing.

    ANS: T   PTS: 1   REF: 12

11. Eliminating redundancy is always possible when using a database approach.

    ANS: F   PTS: 1   REF: 13

12. A database cannot be password protected to prevent unauthorized users from accessing the data.

ANS: F   PTS: 1   REF: 13

13. There is a greater impact of failure in a nondatabase, file-oriented system.

ANS: F   PTS: 1   REF: 14

14. A good DBMS provides integrity constraints, which are features that let you change the structure of the database without changing the programs that access the database.

ANS: F   PTS: 1   REF: 14

15. To support all the complex functions that it provides to users, a DBMS must store data in multiple files.

ANS: F   PTS: 1   REF: 14

MULTIPLE CHOICE

1. Storing the same data in more than one place is called _____.
   a. data independence
   b. data integrity
   c. redundancy
   d. security

   ANS: C   PTS: 1   REF: 2

2. A(n) _____ is a person, place, object, event, or idea for which you want to store and process data.
   a. attribute
   b. DBMS
   c. entity
   d. DBA

   ANS: C   PTS: 1   REF: 4

3. A(n) _____ is a characteristic or property of an entity.
   a. attribute
   b. constraint
   c. datapoint
   d. record

   ANS: A   PTS: 1   REF: 4

4. A(n) _____ is the computer counterpart to an ordinary paper file you might keep in a file cabinet or an accounting ledger.
   a. spreadsheet
   b. database
   c. data file
   d. attribute

   ANS: C   PTS: 1   REF: 5

5. The _____ of an entity become the columns in the database table.
   a. E-R diagrams
   b. tuples
   c. data files
   d. attributes

   ANS: D   PTS: 1   REF: 5

6. An association between entities is known as a(n) _____.
   a. integrity constraint
   b. relationship
   c. database
   d. data file

ANS: B   PTS: 1   REF: 5

7. A visual way to represent a database is with a(n) ____.
    a. spreadsheet   c. DBA
    b. DBMS   d. entity-relationship diagram

    ANS: D   PTS: 1   REF: 9

8. Popular ____ include Access, Oracle, DB2, MySQL, and SQL Server.
    a. E-R diagrams   c. DBMSs
    b. DBAs   d. data files

    ANS: C   PTS: 1   REF: 10

9. During the ____ process, a database expert determines the structure of the required database.
    a. data security   c. database design
    b. database integrity   d. database selection

    ANS: C   PTS: 1   REF: 10

10. ____ are screen objects used to maintain, view, and print data from a database.
    a. Forms   c. Data files
    b. Fields   d. Entities

    ANS: A   PTS: 1   REF: 10

11. Which of the following statements is correct?
    a. In a nondatabase, file-oriented environment, data is often partitioned into several
        disjointed systems with each system having its own collection of files.
    b. User data cannot be combined and shared among authorized users.
    c. Database users should not have access to the same information.
    d. The elimination of redundancy is always possible.

    ANS: A   PTS: 1   REF: 12-13

12. An integrity constraint is a rule that ____.
    a. is kept in an external file
    b. can unintentionally be accessed by unauthorized users
    c. can be accessed only by authorized users
    d. data must follow in the database

    ANS: D   PTS: 1   REF: 13

13. A database has ____ if the data in it satisfies all established integrity constraints.
    a. redundancy   c. data independence
    b. integrity   d. database design

    ANS: B   PTS: 1   REF: 13

14. ____ is the prevention of unauthorized access to the database.
    a. Data independence   c. Redundancy
    b. Integrity constraint   d. Security

    ANS: D   PTS: 1   REF: 13

15. A(n) ____ frees programmers who write database access programs from having to engage in mundane data manipulation activities, such as adding new data and deleting existing data.
    a. DBA   c. entity
    b. E-R diagram   d. DBMS

    ANS: D   PTS: 1   REF: 13

16. A person who is in charge of a database within an organization is often called the database ____.
    a. writer   c. designer
    b. administrator   d. controller

    ANS: B   PTS: 1   REF: 13

17. A good ____ should provide an opportunity for users to incorporate integrity constraints when they design the database.
    a. database administrator   c. E-R diagram
    b. DBA   d. DBMS

    ANS: D   PTS: 1   REF: 13

18. A DBMS lets you assign users to ____.
    a. groups   c. attributes
    b. classes   d. clusters

    ANS: A   PTS: 1   REF: 13

19. ____ is a property that lets you change the structure of the database without requiring you to change the programs that access the database.
    a. Data independence   c. Database design
    b. Integrity constraint   d. Data dependence

    ANS: A   PTS: 1   REF: 14

20. One disadvantage of a database system is ____.
    a. a larger file size   c. reduced integrity
    b. data dependence   d. reduced productivity

    ANS: A   PTS: 1   REF: 14

COMPLETION

1. A program, or collection of programs, through which users interact with a database is known as a(n) _____.

    ANS:
    DBMS
    database management system
    database management system (DBMS)
    DBMS (database management system)

    PTS: 1   REF: 9

2. In an E-R diagram, _____ represent entities.

    ANS: rectangles

PTS: 1   REF: 9

3. In an E-R diagram, _____ represent relationships between connected entities.

ANS: lines

PTS: 1   REF: 9

4. In an E-R diagram, the _____ at the end of a line indicates the "many" part of the one-to-many relationship between two entities.

ANS: dot

PTS: 1   REF: 9

5. A group of people in charge of a database within an organization is often called the _____.

ANS:
DBA
database administration
database administration (DBA)
DBA (database administration)

PTS: 1   REF: 13

6. The problem of inconsistency in data is a direct result of _____.

ANS: redundancy

PTS: 1   REF: 13

7. Eliminating _____ not only saves space but also makes the process of updating data much simpler.

ANS: redundancy

PTS: 1   REF: 13

8. A good _____ has many features that allow users to gain access to data in a database without having to do any programming.

ANS:
DBMS
database management system
database management system (DBMS)
DBMS (database management system)

PTS: 1   REF: 13

9. A database file requires a large amount of disk space and internal _____.

ANS: memory

PTS: 1   REF: 14

10. In a(n) _____ relationship between two entities, each occurrence of the first entity is related to many occurrences of the second entity and each occurrence of the second entity is related to only one occurrence of the first entity.

ANS:
one-to-many
one to many

PTS: 1   REF: 28

ESSAY

1. List the advantages of database processing.

ANS:
Getting more information from the same amount of data
Sharing data
Balancing conflicting requirements
Controlling redundancy
Facilitating consistency
Improving integrity
Expanding security
Increasing productivity
Providing data independence

PTS: 1   REF: 12

2. Explain why it is better to try to control redundancy rather than eliminate it.

ANS:
Although eliminating redundancy is the ideal, it is not always possible. Sometimes, for reasons having to do with performance, you might choose to introduce a limited amount of redundancy into a database. However, even in these cases, you would be able to keep the redundancy under tight control, thus obtaining the same advantages. This is why it is better to say that you control redundancy rather than eliminate it.

PTS: 1   REF: 13

3. Discuss how the database approach and the nondatabase approach differ in terms of ensuring the security of the database.

ANS:
A DBMS has many features that help ensure the enforcement of security measures. For example, a DBA can assign passwords to authorized users; then only those users who enter an acceptable password can gain access to the data in the database. Further, a DBMS lets you assign users to groups, with some groups permitted to view and update data in the database and other groups permitted only to view certain data in the database. With the nondatabase approach, you have limited security features and are more vulnerable to intentional and accidental access and changes to data.

PTS: 1   REF: 13

4. List the disadvantages of database processing.

ANS:
Larger file size
Increased complexity
Greater impact of failure
More difficult recovery

PTS: 1   REF: 14

5. Explain why the impact of failure is greater in database processing, compared with the nondatabase approach.

ANS:
In a nondatabase, file-oriented system, each user has a completely separate system; the failure of any single user's system does not necessarily affect any other user. On the other hand, if several users are sharing the same database, a failure on the part of any one user that damages the database in some way might affect all the other users.

PTS: 1   REF: 14