

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 | c. redundancy |
| b. data integrity | 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 | c. entity |
| b. DBMS | d. DBA |

ANS: C PTS: 1 REF: 4

3. A(n) ____ is a characteristic or property of an entity.
- | | |
|---------------|--------------|
| a. attribute | c. datapoint |
| b. constraint | 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 | c. data file |
| b. database | d. attribute |

ANS: C PTS: 1 REF: 5

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

ANS: D PTS: 1 REF: 5

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

ANS: B PTS: 1 REF: 5

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

ANS: D PTS: 1 REF: 9

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

ANS: B PTS: 1 REF: 13

14. ____ is the prevention of unauthorized access to the database.
- a. Data independence
 - b. Integrity constraint
 - c. Redundancy
 - 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
 - b. E-R diagram
 - c. entity
 - 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
 - b. administrator
 - c. designer
 - 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
 - b. DBA
 - c. E-R diagram
 - d. DBMS
- ANS: D PTS: 1 REF: 13
18. A DBMS lets you assign users to ____.
- a. groups
 - b. classes
 - c. attributes
 - 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
 - b. Integrity constraint
 - c. Database design
 - d. Data dependence
- ANS: A PTS: 1 REF: 14
20. One disadvantage of a database system is ____.
- a. a larger file size
 - b. data dependence
 - c. reduced integrity
 - 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