Multiple Choice Quiz: Database Design

1. What is database design?

    - A) Writing SQL queries
    - B) Organizing data for efficient storage and retrieval
    - C) Managing network connections
    - D) Designing hardware

2. What is a key purpose of database design?

    - A) Increase data redundancy
    - B) Ensure data integrity
    - C) Limit data access
    - D) Reduce query speed

3. What is the first step in database design?

    - A) Implementation
    - B) Requirement Analysis
    - C) Physical Design
    - D) Testing

4. Which database design step involves creating tables in a DBMS?

    - A) Conceptual Design
    - B) Logical Design
    - C) Implementation
    - D) Requirement Analysis

5. In the relational model, data is stored in:

    - A) Files
    - B) Tables
    - C) Trees
    - D) Graphs

6. What uniquely identifies each row in a table?

    - A) Foreign Key
    - B) Primary Key
    - C) Attribute
    - D) Query

7. Which SQL keyword defines a primary key?

    - A) FOREIGN KEY
    - B) PRIMARY KEY
    - C) UNIQUE
    - D) INDEX

8. In the Entity-Relationship model, what represents a real-world object?

    - A) Attribute

- B) Entity
- C) Relationship
- D) Diagram

9. Which of the following is an example of a one-to-many relationship?

- A) One student, one ID card
- B) One course, many students
- C) Many students, many courses
- D) One table, one database

10. What is the purpose of normalization in database design?

- A) Increase data redundancy
- B) Reduce data redundancy and ensure integrity
- C) Slow down queries
- D) Limit database access

11. Which normal form ensures each column contains atomic values?

- A) First Normal Form (1NF)
- B) Second Normal Form (2NF)
- C) Third Normal Form (3NF)
- D) Fourth Normal Form (4NF)

12. What does Second Normal Form (2NF) require?

- A) Non-key attributes depend on the entire primary key
- B) Duplicate columns in a table
- C) Non-key attributes depend on other non-key attributes
- D) No primary key

13. Which normal form eliminates dependencies between non-key attributes?

- A) 1NF
- B) 2NF
- C) 3NF
- D) BCNF

14. What is a benefit of normalization?

- A) Increases data redundancy
- B) Prevents data anomalies
- C) Reduces database scalability
- D) Simplifies query writing

15. In an ER diagram, what shape represents a relationship?

- A) Rectangle
- B) Oval
- C) Diamond
- D) Circle

16. Which database design step involves creating an ER diagram?

- A) Requirement Analysis

- B) Conceptual Design
- C) Logical Design
- D) Physical Design

17. What does a foreign key do in the relational model?

- A) Uniquely identifies a row
- B) Links tables by referencing a primary key
- C) Stores atomic values
- D) Creates an index

18. Which SQL command creates a table?

- A) SELECT
- B) INSERT
- C) CREATE TABLE
- D) UPDATE

19. What is a drawback of normalization?

- A) Increases data redundancy
- B) Increases query complexity
- C) Reduces data integrity
- D) Limits database size

20. In the relational model, a row in a table is also called a:

- A) Field
- B) Tuple
- C) Attribute
- D) Entity

21. What is used to represent attributes in an ER diagram?

- A) Rectangle
- B) Oval
- C) Diamond
- D) Line