RDBMS quiz

1. What does RDBMS stand for?
   - Relational Database Management System
   - Reverse Database Management System
   - Remote Database Management System
   - Robust Database Management System

2. What is the primary purpose of RDBMS?
   - To store and manage large amounts of data
   - To create attractive user interfaces
   - To connect multiple networks
   - To run software programs

3. Which of the following is not a component of RDBMS?
   - Tables
   - Relationships
   - Reports
   - Constraints

4. What is a table in RDBMS?
   - A set of rules that a database must follow
   - A container that holds related data in rows and columns
   - A tool for creating user interfaces
   - A graphical representation of data

5. What is normalization in database management?
   - A process of removing unwanted data from a database
   - A process of converting data into a different format
   - A process of optimizing database performance
   - A process of organizing data in a structured manner

6. What is the main objective of normalization?
   - To reduce database size
   - To improve database security
   - To eliminate data redundancy
   - To increase database performance

7. What is a functional dependency in database normalization?
   - A relationship between two tables in a database
   - A relationship between two attributes in a table
   - A measure of the complexity of a database
   - A technique for optimizing SQL queries

8. Which of the following is not a benefit of normalization?
   - Reduced data redundancy
   - Improved data consistency
   - Increased database performance
   - Improved data security

9. Which of the following represents the highest level of normalization ?
   - BCNF
   - 2NF
   - 3NF
   - 1NF

10. What is the relationship data model?
    - A database model that represents data as tables
    - A database model that represents data as graphs
    - A database model that represents data as key-value pairs
    - A database model that represents data as objects

11. What is a relationship in the relationship data model?
    - A connection between two tables
    - A connection between two attributes in a table
    - A connection between two rows in a table
    - A connection between two databases

12. Who invented the relationship data model?
    - Edgar F. Codd
    - Bill Gates
    - Steve Jobs
    - Tim Berners-Lee

13. What are the types of relationships in a relational database model?
    - One-to-One, One-to-Many, Many-to-One, Many-to-Many
    - One-to-Many, Many-to-One, Many-to-Many, Few-to-Few
    - One-to-One, One-to-Many, Many-to-One, Many-to-Many, Circular
    - One-to-One, One-to-Many, Many-to-One, Many-to-Many, Hierarchy

14. Which of the following is an example of a One-to-One relationship?
    - A customer can have many orders
    - A product can have many orders
    - A person can have only one social security number
    - A company can have many employees

15. Which of the following is an example of a One-to-Many relationship?
    - A customer can have many orders
    - A product can have many orders
    - A person can have only one social security number
    - A company can have many employees

16. Which of the following is an example of a Many-to-One relationship?
    - A customer can have many orders
    - A product can have many orders
    - A person can have only one social security number
    - A company can have many employees

17. Which of the following is an example of a Many-to-Many relationship?
    - A customer can have many orders
    - A product can have many orders
    - A person can have only one social security number
    - A student can take many courses and a course can have many students

18. Which key uniquely identifies a record in a table?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

19. Which key is used to establish a relationship between two tables?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

20. Which key is a potential candidate for becoming a primary key?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

21. Which key is a secondary key that can be used in place of the primary key?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

22. Which key is used to ensure that a column or set of columns contains unique values?
    - Primary key
    - Foreign key
    - Candidate key
    - Unique key

23. How many primary keys can a table have?
    - One
    - Multiple
    - None
    - It depends on the table's structure

24. Can a foreign key be null?
    - yes
    - No
    - It depends on the table's structure
    - It depends on the database management system

25. Which key can be used to uniquely identify a record in a table but is not designated as the primary key?
    - Foreign key
    - Candidate key
    - Alternate key
    - Unique key

26. Which key can be used to uniquely identify a record in a table and is not duplicated in any other table?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

27. Which key(s) can be used to link two or more tables in a relational database?
    - Primary key
    - Foreign key
    - Candidate key
    - Alternate key

28. What is the Single Responsibility Principle?
    - A principle that states that each database table should have only one primary key
    - A principle that states that each database table should have only one foreign key
    - A principle that states that each module or class should have only one responsibility
    - A principle that states that each database table should have only one attribute

29. How does the Single Responsibility Principle relate to database normalization?
    - It ensures that each table has only one primary key
    - It ensures that each table has only one foreign key
    - It ensures that each table has a clear and well-defined purpose
    - It ensures that each table has only one attribute

30. Which of the following is an example of violating the Single Responsibility Principle in database design?
    - A table that contains customer information and order information
    - A table that contains product information and supplier information
    - A table that contains user information and permission information
    - A table that contains employee information and department information

31. How can you apply the Single Responsibility Principle in database normalization?
    - By dividing large tables into smaller, more focused tables
    - By combining multiple tables into one large table
    - By adding more columns to existing tables
    - By adding more foreign keys to existing tables

32. Which normal form(s) are related to the Single Responsibility Principle?
    - First Normal Form (1NF)
    - Second Normal Form (2NF)
    - Third Normal Form (3NF)
    - All of the above

33. What is a data anomaly?
    - An error in the database schema
    - An inconsistency or deviation in the data that can lead to incorrect or unexpected results
    - A problem with the database management system
    - A security vulnerability in the database

34. What is an insertion anomaly?
    - When a record cannot be added to a table due to a constraint violation
    - When a record is added to a table, but the data is inconsistent or incomplete
    - When a record is added to a table, but it creates a new, unintended relationship between entities
    - When a record is added to a table, but it contains duplicate data

35. What is a deletion anomaly?
    - When a record is removed from a table, but it results in the loss of related data
    - When a record is removed from a table, but it violates a constraint or dependency
    - When a record is removed from a table, but it creates a new, unintended relationship between entities
    - When a record is removed from a table, but it contains duplicate data

36. What is an update anomaly?
    - When a record is modified in a table, but the changes are inconsistent or incomplete
    - When a record is modified in a table, but it violates a constraint or dependency
    - When a record is modified in a table, but it creates a new, unintended relationship between entities
    - When a record is modified in a table, but it contains duplicate data

37. Which normal form(s) can help to eliminate insertion, deletion, and update anomalies?
    - First Normal Form (1NF)
    - Second Normal Form (2NF)
    - Third Normal Form (3NF)
    - All of the above

38. What is a database join?
    - A method of combining data from multiple tables into one table

- A process of merging multiple tables into one
- A process of creating a new table from existing data
- A process of combining rows from two or more tables based on a related column
- A process of copying data from one table to another

39. What is the purpose of a database join?

- To reduce the size of the database
- To increase the performance of the database
- To combine related data from multiple tables into a single result set
- To eliminate duplicate data in the database

40. Which types of joins are commonly used in SQL?

- Inner join, left join, right join, and full outer join
- Inner join, outer join, cross join, and natural join
- Left join, right join, natural join, and self join
- Inner join, outer join, self join, and full outer join

41. .What is the difference between an inner join and an outer join?

- An inner join returns only the matching rows from both tables, while an outer join returns all rows from one table and matching rows from the other table.
- An inner join returns all rows from both tables, while an outer join returns only the matching rows from both tables. An inner join returns all rows from both tables, while an outer join returns only the matching rows from both tables.
- An inner join returns all rows from one table and matching rows from the other table, while an outer join returns only the matching rows from both tables.
- An inner join and an outer join are the same thing.

42. Why do we need joins in database design?

- To simplify the database schema
- To reduce the size of the database
- To eliminate redundancy in the database
- To combine data from multiple tables and enable more complex queries

43. What is BCNF in database normalization?

- Boyce-Codd Normal Form
- Binary Code Normal Form
- Balanced Comparison Normal Form
- Basic Concept Normal Form

44. What is the objective of BCNF?

- To eliminate all functional dependencies in a table
- To ensure that every non-prime attribute is functionally dependent on the primary key
- To eliminate all partial dependencies in a table
- To ensure that every attribute in a table is atomic

45. When is a table said to be in BCNF?

- When it is in 1NF and 2NF
- When it is in 2NF and 3NF
- When it is in 3NF and 4NF
- When it is in 3NF and every non-prime attribute is functionally dependent on the primary key

46. What is the difference between 3NF and BCNF?

- There is no difference, they are the same thing
- 3NF eliminates all transitive dependencies, while BCNF eliminates all non-trivial dependencies
- 3NF eliminates all partial dependencies, while BCNF eliminates all transitive dependencies
- 3NF eliminates all partial dependencies, while BCNF eliminates all non-trivial dependencies

47. What is a non-trivial functional dependency?

- A dependency in which the determinant is a proper subset of the candidate key
- A dependency in which the determinant is equal to the candidate key
- A dependency in which the determinant is a superkey
- A dependency in which the determinant is not a key

48. What is 1NF in database normalization?

- First Normal Form
- Second Normal Form
- Third Normal Form
- Fourth Normal Form

49. What is the objective of 1NF?

- To eliminate all partial dependencies in a table
- To ensure that every attribute in a table is atomic
- To eliminate all redundant data in a table
- To ensure that every non-key attribute is dependent on the primary key

50. When is a table said to be in 1NF?

- When it contains no repeating groups of attributes
- When it is in 2NF and 3NF
- When it contains no null values
- When it contains a primary key