Q1. Explain the different types of joins in SQL.

Q2. What is the PRIMARY KEY in SQL?

Q3. What are constraints?

Q4. What’s the difference between DELETE and TRUNCATE statements in SQL?

Q5. What is query optimization?

Q6. Given the tables below, select the top three departments with at least ten employees and rank them according to the percentage of their employees making over $100,000 in salary.

Q7. Given a users table, write a query to get the cumulative number of new users added by day, with the total reset every month.

Q8. Given a table of product subscriptions with a subscription start date and end date for each user, write a query that returns true or false whether or not each user has a subscription date range that overlaps with any other user.

Q9. Given a table of students and their SAT test scores, write a query to return the two students with the closest test scores with the score difference.

Q10. We’re given two tables, a users table with demographic information and the neighborhood they live in and a neighborhoods table. Write a query that returns all of the neighborhoods that have 0 users.

Q11. Given a table of transactions and products, write a query to return the product id, product price, and average transaction price of all products with price greater than the average transaction price.

Q12. Let’s say we have two tables, transactions and products. Hypothetically the transactions table consists of over a billion rows of purchases bought by users.

Q20 Explain the concept of database locking and different types of locks used for concurrency control.

Q21 Discuss the concept of materialized views in a database and their advantages and limitations.

Q22 Explain the concept of database denormalization and scenarios where it may be beneficial.

Q23 What are the different types of database indexes, and how do they impact query performance?

Q24 Discuss the differences between OLTP (Online Transaction Processing) and OLAP (Online Analytical Processing) databases.

Q25 Explain the concept of database backup and recovery strategies, including full and incremental backups.

Q26 What is the role of a database schema in a DBMS and how does it define data structure?

Q27 Discuss the differences between a primary key and a unique key in a database.

Q28 Explain the concept of database views and their benefits in terms of security and query simplification.

Q29 Can you discuss the concept of database triggers and provide examples?

Q30 Explain the purpose of SQL (Structured Query Language) in a DBMS.

Q31 Discuss the concept of database replication and its importance in achieving data redundancy.

Q32 Explain the concept of database partitioning and its benefits in performance optimization.

Q33 What are the challenges associated with scaling a database, and how can they be addressed?

Q34 Explain the concept of database indexing and different types of indexes.

Q35 Discuss the differences between clustered and non-clustered indexes in a database.

Q36 What is the role of a database administrator (DBA) in a DBMS environment?

Q37 Discuss the concept of database security and measures to protect sensitive data.

Q38 Explain the concept of database locking and different types of locks for concurrency control.

Q39 Discuss the differences between optimistic and pessimistic concurrency control in a DBMS.

Q40 What is database normalization, and why is it important in database design?

Q41 Discuss the concept of database denormalization and when it may be appropriate.

Q42 Explain database backup and recovery strategies, including full and incremental backups.

Q43 How does a distributed database system differ from a centralized database system?

Q44 Discuss the concept of database normalization and its role in reducing data redundancy.

Q45 What is the purpose of a database management system (DBMS) in an organization's data infrastructure?

Q46 Explain the concept of database indexing and its impact on query performance in a DBMS.

Q47 How does a transaction log ensure data durability and recoverability in a database system?

Q48 Discuss the advantages and disadvantages of using denormalized databases in certain scenarios.

Q49 What is the role of a database administrator (DBA) in maintaining data security and integrity?

Q50 Explain the concept of database sharding and its use in horizontal database scaling.

Q1 Can you explain the role of a database management system (DBMS) and how it manages data?

Q2 What are the advantages and disadvantages of using a relational database management system (RDBMS)?

Q3 Explain the concept of normalization in database design and provide an example.

Q4 What is the difference between a primary key and a foreign key in a database?

Q5 How does a DBMS enforce referential integrity in a relational database?

Q6 Discuss the differences between a clustered index and a non-clustered index.

Q7 What is a database schema, and how does it define data organization?

Q8 Explain the concept of database transactions and their impact on data consistency.

Q9 What are database triggers and how do they work? Provide an example.