1. **What database models do you know?**Relational, Network, Hierarchical, Object-oriented
2. **Which are the main functions performed by a Relational Database Management System (RDBMS)?**Manipulation of table objects and the relationships between them as well as the data stored in them via the Structured Query Language
3. **Define what is "table" in database terms.**Tables are objects that consist of data arranged in rows and columns where all the rows have the same structure defined by the schema of the table, that is a sequence of column specifications
4. **Explain the difference between a primary and a foreign key.**The primary key is a column of the table that uniquely identifies its rows, while a foreign key is an identifier of a record located in another table
5. **Explain the different kinds of relationships between tables in relational databases.**
   1. One-to-many: a single record in Table1 has many corresponding records in Table2
   2. Many-to-many: records in Table1 have many corresponding records in Table2 and is implemented through another table
   3. One-to-one: a single record in Table1 corresponds to a single record in Table2, used to model inheritance
6. **When is a certain database schema normalized? What are the advantages of normalized databases?**A schema is normalized when the non-key columns depend on the key used. This usually produces smaller tables with smaller rows, which are more compact, and records are faster to modify and search through. Also the database is easier to maintain and change.
7. **What are database integrity constraints and when are they used?**Integrity constraints enforce data rules which cannot be violated to ensure data integrity.
8. **Point out the pros and cons of using indexes in a database.**Indices speed up searching in a certain column or groups of columns, but slow down addition and deletion of records in those tables.
9. **What's the main purpose of the SQL language?**SQL’s purpose is to manipulate relational databases.
10. **What are transactions used for? Give an example.**Transactions are used to guarantee the consistency and integrity of the database. They are a sequence of database operations that are executed as a single unit. An example is a bank transfer from one account into another (withdrawal + deposit)
11. **What is a NoSQL database?**A NoSQL database uses a document-based model, which is schema-free. A single document is a single record.
12. **Explain the classical non-relational data models.**Document model – set of documents

Key-value model – set of key-value pairs  
Hierarchical key-value – Hierarchy of key-value pairs  
Wide-column model – Key-value model with schema

Object model – set of OOP-style objects

1. **Give few examples of NoSQL databases and their pros and cons.**Redis – fast in-memory data structures  
   MongoDB – powerful JSON-document database  
   CouchDB - JSON-document database with RESP API