1. In SQL Server, assuming you can find the result by using both joins and subqueries, which one would you prefer to use and why?

   I would prefer to use joins because:

   it executes faster.

   The retrieval time of the query using joins almost always will be faster than that of a subquery.

   By using joins, you can maximize the calculation burden on the database i.e., instead of multiple queries using one join query. This means you can make better use of the database's abilities to search through, filter, sort, etc.

2. What is CTE and when to use it?

   A CTE (Common Table Expression) is a temporary result set that you can reference within another SELECT, INSERT, UPDATE, or DELETE statement. They were introduced in SQL Server version 2005. They are SQL-compliant and part of the ANSI SQL 99 specification.

3. What are Table Variables? What is their scope and where are they created in SQL Server?

In this syntax, you specify the name of the table variable between the DECLARE and TABLEkeywords. The name of the table variables must start with the @ symbol.

Following the TABLE keyword, you define the structure of the table variable which is similar to the structure of a regular table that includes column definitions, data type, size, optional constraint, etc.

4. What is the difference between DELETE and TRUNCATE? Which one will have better performance and why?

   DELETE is a DML command as it only modifies the table data, whereas the TRUNCATE is a DDL command.

   DELETE command can filter the record/tuples by using the WHERE clause. However, the TRUNCATE command does not allow to use **WHERE** clause, so we cannot filter rows while truncating.

   TRUNCATE command is **faster** than the DELETE command as it deallocates the data pages instead of rows and records data pages instead of rows in transaction logs.

5. What is Identity column? How does DELETE and TRUNCATE affect it?

   An **identity column** is a column (also known as a field) in a database table that is made up of values generated by the database. This is much like an AutoNumber field in Microsoft Access or a sequence in Oracle. Because the concept is so important in database science, many RDBMS systems implement some type of generated key, although each has its own terminology.

   An identity column differs from a primary key in that its values are managed by the server and usually cannot be modified. In many cases an identity column is used as a primary key; however, this is not always the case.

6. What is difference between "delete from table_name" and "truncate table table_name"?
   DELETE and TRUNCATE are the commands use to remove tuples from a relation, but they differ in many contexts. In SQL, DELETE command is a **Data Manipulation Language** command whereas, TRUNCATE command is a **Data Definition Language** command.