Q1. What is a database? Differentiate between SQL and NoSQL databases.

A database is a collection of organized data that can be easily accessed, managed, and updated.

The differences between SQL and NoSQL databases are:

Data Model: SQL databases are based on the relational model and use tables with predefined schemas to store data, while NoSQL databases use a variety of data models and are schema-less.

Querying Language: SQL databases use SQL for querying data, while NoSQL databases use specialized querying languages or APIs.

Scalability: NoSQL databases are designed to scale horizontally, by adding more servers to a distributed system, while SQL databases scale vertically, by adding more resources to a single server.

Consistency: SQL databases ensure strong consistency through ACID compliance, while NoSQL databases often trade off consistency for scalability and availability.

Q2. What is DDL? Explain why CREATE, DROP, ALTER, and TRUNCATE are used with an example.

DDL stands for Data Definition Language, which is a set of SQL commands used to define and manipulate the structure of a database. DDL commands are used to create, modify, and delete database objects such as tables, indexes, and constraints.

CREATE : This command is used to create a new table in SQL. The user has to give information like table name, column names, and their datatypes.

DROP : This command is used to remove an existing table along with its structure from the Database.

ALTER : This command is used to add, delete or change columns in the existing table. The user needs to know the existing table name and can do add, delete or modify tasks easily.

TRUNCATE : This command is used to remove all rows from the table, but the structure of the table still exists.

Q3. What is DML? Explain INSERT, UPDATE, and DELETE with an example.

The data manipulation language statements are used to retrieve, add, delete, and modify the data that is stored in the objects of database. The keywords or statements that are associated with the data manipulation language are: SELECT INSERT, UPDATE and DELETE. These are the primary statements of data manipulation language (DML) and are used widely.

INSERT statement is used to insert a new row in the database that is adding data to a table.

SELECT statement is used to retrieve record from one or more tables.

UPDATE statement is used to update the data or row in the table.

MERGE statement is used to merge two rows or two tables in the database.

DELETE statement is used to delete a row from the table in the database.

Q4. What is DQL? Explain SELECT with an example.

DQL is used to fetch the data from the database.

SELECT : This is the same as the projection operation of relational algebra. It is used to select the attribute based on the condition described by WHERE clause.

Q5. Explain Primary Key and Foreign Key.

Primary key : The PRIMARY KEY constraint uniquely identifies each record in a table. Primary keys must contain UNIQUE values, and cannot contain NULL values. A table can have only ONE primary key; and in the table, this primary key can consist of single or multiple columns (fields).

Foreign Key : The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables.

A FOREIGN KEY is a field (or collection of fields) in one table, that refers to the PRIMARY KEY in another table.

The table with the foreign key is called the child table, and the table with the primary key is called the referenced or parent table.

Q6. Write a python code to connect MySQL to python. Explain the cursor() and execute() method.

In [ ]:

```
import mysql.connector
conn = mysql.connector.connect( host = 'localhost' , user = 'root' , password = '' )
mycursor = conn.cursor()
mycursor.execute("show databases")
for i in mycursor.fetchall():
    print(i)
```

Cursor() : It is an object that is used to make the connection for executing SQL queries. It acts as middleware between SQLite database connection and SQL query. It is created after giving connection to SQLite database.

execute() : This routine is a shortcut of the above execute method provided by the cursor object and it creates an intermediate cursor object by calling the cursor method, then calls the cursor's execute method with the parameters given.

Q7. Give the order of execution of SQL clauses in an SQL query.

FROM

WHERE

GROUP BY

HAVING

SELECT

ORDER BY

LIMIT

In [ ]: