**1. What is a database?**  
A database is a collection of related data stored together for easy access and management.  
**Example**: A school database storing student names, roll numbers, and marks.

**2. Difference between Database and DBMS**

* **Database** → Stores the data.
* **DBMS** → Software used to manage the database.  
  **Example**: Database = Student data file, DBMS = MySQL software.

**3. Types of Databases**

* Relational, NoSQL, Distributed, Hierarchical, Object-Oriented.  
  **Example**: Relational database → MySQL.

**4. Relational Database**  
Stores data in tables with rows and columns, and links them using keys.  
**Example**: Employees table linked to Departments table using DeptID.

**5. Normalization & Types**  
Organizing data to remove redundancy and improve efficiency.

* **1NF** → Remove repeating groups.
* **2NF** → Remove partial dependency.
* **3NF** → Remove transitive dependency.  
  **Example**: Splitting customer address into street, city, and state.

**6. Denormalization**  
Adding redundancy to improve read speed.  
**Example**: Storing customer address in both Orders and Customers tables.

**7. Primary Key vs Unique Key**

* **Primary Key** → Uniquely identifies each record, no NULLs.
* **Unique Key** → Uniquely identifies, but can have one NULL.  
  **Example**: Primary Key → RollNo, Unique Key → Email.

**8. Foreign Key**  
A field in one table that links to the primary key in another table.  
**Example**: Orders table has as foreign key from Customers table.

**9. Indexes**  
Structures that speed up data search in a table.  
**Example**: Creating an index on the "Name" column for fast search.

**10. Composite Key**  
A key made from two or more columns to uniquely identify a record.  
**Example**: (OrderID, ProductID) together as a key in OrderDetails table.