QUES) What is the significance of “%” and “\_” operators in the LIKE statement?

ANS--> 1. % (Percent Sign)

Meaning: Matches zero or more characters.

Use Case: Find values where the pattern can appear anywhere in the string.

E.X.--> SELECT\*FROM EMPLOYEES WHERE name LIKE 'Xo%';(FINDS NAMES STARTING WITH

Xo)

SELECT\*FROM EMPLOYEES WHERE name LIKE '%Xo';(FINDS NAMES ENDING WITH Xo)

SELECT\*FROM employees WHERE name LIKE '%mit%';(FINDS ANY VALUE CONTAINING mit)

2. \_ (Underscore)

Meaning: Matches exactly one character.

Use Case: Find values with specific characters at certain positions.

E.X.--> SELECT\*FROM EMPLOYEES WHERE name LIKE '\_a\_\_';(FINDS 4-letter name in which

2nd letter is 'a')

SELECT\*FROM EMPLOYEES WHERE name LIKE 'J\_\_\_';(FINDS 4-letter name in which 1st letter is 'J')

QUES) Explain normalization in the context of databases.

Ans🡪Normalization in the context of databases is a process used to organize data efficiently by minimizing redundancy (duplicate data) and ensuring data integrity.

Goals of Normalization:-

Eliminate redundant data

Ensure logical data storage

Improve data integrity

Make maintenance easier

Normalization Forms (Normal Forms)

Normalization is typically carried out in stages, called normal forms (NF). Each stage builds upon the previous one:

--> 1NF (First Normal Form)

Eliminate repeating groups.

Ensure each column contains atomic values (no lists or arrays).

Each record must be unique.

Example: No multiple phone numbers in a single cell.

--> 2NF (Second Normal Form)

Must be in 1NF.

Remove partial dependencies (when non-key attributes depend on part of a composite primary key).

Example: Move subject names out of a student-subject table if they depend only on subject ID, not on student ID.

--> 3NF (Third Normal Form)

Must be in 2NF.

Remove transitive dependencies (non-key attribute depending on another non-key attribute).

Example: If a table has employee ID, department ID, and department name, move department info to a separate table.

--> BCNF (Boyce-Codd Normal Form)

A stronger version of 3NF.

Every determinant must be a candidate key.

QUES) What does a join in MySQL mean?

Ans🡪In **MySQL**, a **JOIN** is used to combine rows from two or more tables **based on a related column between them** — usually a **foreign key** and a **primary key**.

**Types of JOINs in MySQL**

|  |  |
| --- | --- |
| **INNER JOIN** | :- Returns only matching rows in both tables |

|  |  |
| --- | --- |
| **LEFT JOIN** | :- Returns all rows from the left table and matching rows from the right |

|  |  |
| --- | --- |
| **RIGHT JOIN** | :- Returns all rows from the right table and matching rows from the left |

|  |  |
| --- | --- |
| **FULL OUTER** :-**JOIN** | Not supported natively in MySQL — simulate using UNION of LEFT and RIGHT |

|  |  |
| --- | --- |
| **CROSS JOIN** | :- Returns all combinations (Cartesian product) — rarely used directly |

|  |  |
| --- | --- |
| **SELF JOIN** | :- Joins a table with itself, useful for hierarchical data |

QUES):- What do you understand about DDL, DCL, and DML in MySQL?

Ans--> **1. DDL – Data Definition Language:-**

Deals with defining and modifying the structure of database objects (like tables, schemas).

|  |  |
| --- | --- |
| **CREATE** | Creates new tables, views, indexes |

|  |  |
| --- | --- |
| **ALTER** | Modifies existing tables (add/remove columns, constraints) |

|  |  |
| --- | --- |
| **DROP** | Deletes tables or other objects |

|  |  |
| --- | --- |
| **TRUNCATE** | Deletes all records from a table quickly, without logging each row deletion |

|  |  |
| --- | --- |
| **RENAME** | Renames a table |

**2) DML – Data Manipulation Language:-**

Deals with **managing data inside the tables** — insert, update, read, or delete records.

|  |  |
| --- | --- |
| **SELECT** | Reads data from tables |

|  |  |
| --- | --- |
| **INSERT** | Adds new rows |

|  |  |
| --- | --- |
| **UPDATE** | Modifies existing rows |

|  |  |
| --- | --- |
| **DELETE** | Removes rows from a table |

**3. DCL – Data Control Language**

Controls **access and permissions** on the database

|  |  |
| --- | --- |
| **GRANT** | Gives user access rights (e.g., read/write) |

|  |  |
| --- | --- |
| **REVOKE** | Removes access rights from users |

**QUES**) What is the role of the MySQL JOIN clause in a query, and what are some common types of joins?

**Ans**🡪 The JOIN clause is used to:

**Combine data from two or more tables** in a single result set **based on a related column**, typically a foreign key.

TYPES OF JOINS MENTIONED IN ABOVE QUESTION.