MySQL Complete Study Guide – Updated Edition

Table of Contents

1. SQL Commands Overview

DDL – Define structures.
DML – Insert/update/delete data.
DQL – Select/query data.
DCL – Manage permissions.
TCL – Control transactions.

2. SQL Commands (Syntax + Explanation + Examples)

CREATE – Creates a table.
Syntax:
CREATE TABLE table_name(col datatype);
Example:
CREATE TABLE employee(emp_id INT PRIMARY KEY, name VARCHAR(50));

ALTER – Modifies a table.
Example:
ALTER TABLE employee ADD age INT;

DROP – Deletes a table completely.
DROP TABLE employee;

INSERT – Inserts rows.
INSERT INTO employee VALUES(1,'Kishan',25);

UPDATE – Updates rows.
UPDATE employee SET age=30 WHERE emp_id=1;

DELETE – Deletes rows.
DELETE FROM employee WHERE emp_id=1;

SELECT – Retrieves data.
SELECT * FROM employee;

3. MySQL Data Types Explained

Numeric: INT, FLOAT, DECIMAL – store numbers.
String: CHAR, VARCHAR, TEXT – store text.
Date: DATE, DATETIME, TIMESTAMP – store dates.
Binary: BLOB types.

4. Keys in SQL (With Definitions)

Primary Key: Uniquely identifies rows.
Candidate Key: Any column that could be a primary key.
Super Key: Any attribute set that uniquely identifies rows.
Alternate Key: Candidate keys except primary key.
Composite Key: Key made of 2 or more columns.
Foreign Key: Connects tables and maintains integrity.

5. Constraints (Meaning + Example)

NOT NULL: Cannot be empty.
UNIQUE: No duplicates allowed.
PRIMARY KEY: Unique + Not Null.
FOREIGN KEY: Links tables.
CHECK: Validates conditions (age>=18).
DEFAULT: Auto-value if none given.
AUTO_INCREMENT: Auto-numbering.
ENUM: Accepts one from fixed values.
SET: Accepts multiple values.
Generated Column: auto-calculated field.

6. ER Diagram – Employee, Department, Job, Location

DEPARTMENT(deptno PK, dname)
↓ 1 to many
EMPLOYEE(emp_id PK, name, deptno FK, job_code FK, location_code FK)
↓ many to 1
JOB(job_code PK, job_name)
↓ many to 1
LOCATION(location_code PK, location_name)

7. Practice Questions (Basic Level)

1. Create a table student(id, name, marks).
2. Insert 3 rows.
3. Update marks of one student.
4. Delete a student.
5. Select all students whose marks > 70.