🧩 Quiz 1 – Database Fundamentals (10 Marks)

Total Time: 15 minutes
Question Type: MCQ + Short Answer

1. Multiple Choice (1 mark each)
a. Which of the following best defines a database?

- A. A random collection of files

- B. An organized collection of data

- C. A set of programs for arithmetic operations

- D. A spreadsheet

b. Which of the following is *not* a DBMS?

- A. MySQL

- B. Oracle

- C. MS Word

- D. PostgreSQL

c. The primary key in a table must be:

- A. Unique and not null

- B. May contain duplicates

- C. Optional

- D. Always numeric

d. Which component of a DBMS allows users to write SQL queries?

- A. Query processor

- B. Data dictionary

- C. Transaction manager

- D. Buffer manager

2. Short Questions (2 marks each)
a. Define "DBMS" and mention two examples.
b. What is the difference between a record and a field?
c. Write any **two advantages** of using databases over file systems.

🧠 Quiz 2 – Relational Model & SQL Basics (10 Marks)

Total Time: 20 minutes
Question Type: Short Answer + Query Writing

1. Fill in the blanks (1 mark each)
a. A _____ uniquely identifies each row in a table.
b. The SQL command used to remove all rows from a table is _____.
c. To display data from a table, we use the _____ statement.

2. Short Questions (2 marks each)
a. What is a *foreign key*? Give one example.
b. Write a SQL query to select the names of all students from the table `Student(name, id, dept)`.
c. What is the difference between `DELETE` and `DROP`?
d. What does the term *referential integrity* mean?

🧮 Midterm Exam – Database Systems (20 Marks)

Total Time: 45 minutes
Question Type: Conceptual + Query + Scenario

Part A: Short Questions (2 marks × 4 = 8 marks)

1. Differentiate between **schema** and **instance** in a database.

2. Define the term **normalization**. Why is it important?

3. Explain the concept of **entity** and **relationship** with examples.

4. What are the three levels of database architecture (ANSI-SPARC model)?

Part B: SQL Query Writing (2 marks × 4 = 8 marks)

Use the following table:

Employee(emp_id, name, dept, salary)

1. Write a query to display all employees from the `Sales` department.

2. Write a query to show the name and salary of employees earning more than 30,000.

3. Write a query to increase salary by 10% for employees in `HR`.

4. Write a query to display employees sorted by salary (highest first).

Part C: ER Model / Conceptual (4 marks)

Draw an **ER diagram** for the following case:

A university has *students* (student_id, name, dept) who *register* for *courses* (course_id, title).
Each course is taught by one *teacher* (teacher_id, name, designation).
Show all relationships with cardinalities.