Unit -1 (2 marks)

1.What is the purpose of Database Management systems?
2.Write the characteristics that distinguish the database approach with the file based approach?
3.Differentiate between dynamic SQL and static SQL
4.Give a brief description about DCL Command?
5.What is a "view" in the context of databases?
6.What is a data model in a database system?
7.What are the three levels of database system architecture?
8.What is a relational database?
9.What is a relational model in a database?
10.What is the purpose of a primary key in a relational database?
11.What is relational algebra?
12.What is the basic function of SQL?

Unit-1(16 Marks)
1.What are data models? Explain the different types of data models with examples.
2.Draw and explain the database system architecture?
3..Explain the relational model and discuss its components such as tables, attributes, tuples, and relationships.
4..Define keys in the context of a relational database. Explain the different types of keys, including primary, foreign, and candidate keys.
5.Discuss relational algebra and its operations. Provide examples of basic operations such as selection, projection, union, and join.
6.Consider the following tables for a university database:

1. Students

student_id	name	age	department_id
1	Alice	21	101
2	Bob	22	102
3	Charlie	23	101
4	Diana	21	103

2. Departments

department_id	department_name
101	Computer Science
102	Mathematics
103	Physics

3. Courses

course_id	course_name	department_id
1	Data Structures	101
2	Calculus	102
3	Physics I	103
4	Algorithms	101

4. Enrollments

student_id	course_id
1	1
1	4
2	2
3	1
4	3

a) Write an SQL query to retrieve the names of all students enrolled in the course "Data Structures."
 (2 Marks)

b) Write an SQL query to find the names of students who are enrolled in courses offered by the "Computer Science" department.
 (2 Marks)

c) Write an SQL query to list the courses and the number of students enrolled in each course.
 (3 Marks)

d) Write an SQL query to find the average age of students enrolled in each department.
 (3 Marks)

e) Write an SQL query to retrieve the names of students who are not enrolled in any course.
 (3 Marks)

f) Write an SQL query to find the department with the maximum number of students enrolled.
 (3 Marks)