**Short Answer Type Questions:**

1. What are the uses of SQL?
2. What is an Entity type? Give the differences between Strong Entity & Weak Entity?
3. Define Attribute, Schema & Instance.
4. What is Data Definition Language (DDL)
5. What is Data Manipulation Language (DML)?
6. Definitions of all Normal forms.
7. What are basic operations in relational algebra?
8. Give syntax for CREATE, DELETE and ALTER Statements for database, tables.
9. Define Candidate key, Super key, Primary key & Foreign key

**Long Answer Type Questions:**

1. Find the highest Normal form of any given relation.
2. Find the Candidate Key of any relation R.
3. State the two conditions which are imposed on candidate key?
4. Express following queries in relational algebra: “Find all the makers who make some laptop(s)”
5. Express following queries in relational algebra: “Find the makers who don’t make any desktop, and do make some laptop(s)”
6. Write the SQL Query to “Find all desktop models with the highest speed/price ratio, and return them along with their makers”
7. Write the SQL Query to “Find all laptop models and their makers”
8. A university registrar’s office maintains data about the following entities:
9. Courses: including number, title, credits, syllabus, and prerequisites;
10. Course offerings: including course number, year, semester, section number, instructor(s), timings, and classroom;
11. Students: including student-id, name, and program;
12. Instructors: including identification number, name, department, and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled. Construct an E-R diagram for the registrar’s office. Document all assumptions that you make about the mapping constraints.

1. Construct an E-R diagram for a car-insurance company whose customers own one or more cars each. Each car has associated with it zero to any number of recorded accidents.
2. List the department numbers where there are no employees.