

Duration: 3hrs

[Max Marks:80]

- N.B.: (1) Question No 1 is Compulsory.
(2) Attempt any three questions out of the remaining five.
(3) All questions carry equal marks.
(4) Assume suitable data, if required and state it clearly.

- 1 Attempt any FOUR [20]
 - a Compare the traditional file system with DBMS.
 - b Write short notes on: Data independence and types of data independence.
 - c Explain various data definition (DDL) statements in SQL.
 - d What is Redundancy? Explain the different anomalies in relational database.
 - e Discuss Serializability? Explain conflict and view serializability in a transaction
- 2 a Describe Joins and different types of Joins operation in Relational algebra. [10]
Distinguish between Natural join and Inner join in Relational algebra.
b Explain different Set Relational Algebra Operator with example. [10]
- 3 a Draw ER Diagram for a Company has the following description : [10]
Company has several departments.Each department may have several Location. Departments are identified by a name, D_no;Location.A Manager control a particular department.Each department is associated with number of projects.Employees are identified by name, id, address, dob, date_of_joining.An employee works in only one department but can work on several project. We also keep track of number of hours worked by an employee on a single project. Each employee has dependent. Dependent has D_name, Gender and relationship
b What is Entity set? And also define Relationship set., List and explain the symbols used to draw ER diagram [10]
- 4 a Consider the following schema for employee database. [10]
Employee (emp_id, empname, street, city, date of join)
Works (empname, company-name, salary)
Company (company-name, city)
Manages (empname, manager-name)
Write SQL queries for the following statements:
i. write a SQL query to find empname who is getting salary between 500 and 2000. '
ii .Find the total no of employees 'in each company with salary greater than 50000

- iii. Create Employee relation using SQL commands by considering emp_id as primary key.
- iv. Select all Employee with a name have "S" in fourth position. "
- v .Write a query to sort the records in the descending order of the their salary
- b What are the different aggregate functions used in SQL? Explain with the help of example. [10]
- 5 a Define Normalization and different types of normalization methods with example [10]
- b What do you mean by Lock Based protocol? Explain Two Phase (2PL) locking protocol and different types/versions of 2PL. [10]
- 6 a Describe concept of Transaction and also illustrate ACID properties in detail. [10]
- b What is Transitive dependency. State and explain in which Normal form this concept is used. [10]
