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.

                                                                    [20]

1   Attempt any FOUR
   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

                                                                    [10]
2 a   Describe Joins and different types of Joins operation in Relational algebra.
        Distinguish between Natural join and Inner join in Relational algebra.   [10]
   b   Explain different Set Relational Algebra Operator with example.

                                                                    [10]
3 a   Draw ER Diagram for a Company has the following description :
        Company has several departments.Each department may have several
        Location. Departmentsare 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 andrelationship   [10]
   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.
        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

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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]

concept is used.

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