C

Reg. No. :

PART A - (5x 1 = 5 Marks)

1. For select operation the _____ appear in the subscript and the _____   CO1- U
    argument appears in the parenthesis after the sigma.

    (a) Predicates, relation   (b) Relation, Predicates

    (c) Operation, Predicates   (d) Relation, Operation

2. In an ER diagram the symbol ____ represents an attribute.   CO1- U

    (a) Rectangle   (b) Ellipse

    (c) Diamond   (d) Arrow

3. Which of the following locks the item from change but not from read?   CO1- U

    (a) Implicit   (b) Explicit   (c) Exclusive   (d) Shared

4. What is the unique characteristic of RAID 6 (Choose one)?   CO1- U

    (a Distributed Parity   (b) Striping

    (c) Two independent distributed parity   (d) Mirroring

5. An abstraction concept for building composite object from their component   CO1-U
    object is called?

    (a) Specialization   (b) Normalization   (c) Generalization   (d) Aggregation

PART – B (5 x 3= 15Marks)

6. State the functions of Database Administrator (DBA).   CO1- U

7. Define Entity, Attributes, Entity set, relationship with appropriate notations?   CO1- U

8. What do you mean by locks? Mention its types   CO1- U

9. What is hashing? CO1- U

10. Define object oriented database. CO1- U

PART – C (5 x 16= 80Marks)

11. (a) Consider the following relational schema: CO2-App (8)

   Employee(empno,name,office,age)
   Books(isbn,title,authors,publisher)
   Loan(empno,isbn,date)
   Write the following queries in relational algebra.

   (i) Find the names of employees who have borrowed a book Published by XYZ Ltd.,

   (ii) Find the names of employees who have borrowed all books Published by XYZ Ltd.,

   (iii) Find the names of employees who have borrowed more than five different BOOKS Published by XYZ Ltd.,

   (iv) For each Publisher, find the names of employees who have borrowed more than five books of that Publisher.

Or

(b) Consider the following schema of the table and write query to the following questions. CO2-App (10)

   Employee info(emp id,empfname,emplname,department, project, address, dob, gender)
   EmployeePosition(empid,empposition,doj,salary)

   i. Write q query to find all the employees whose salary is between 50000 to 100000.

   ii. Write a query to the first name of all the female employee.

   iii. Write a query to fetch all employees who also hold the managerial position.

   iv. Write a query to retrieve minimum and maximum salaries from the EmployeePosition table.

   v. Write a query to fetch details of all employees excluding the employees with first names, "Sanjay" and "Sonia" from the EmployeeInfo table.

   vi. Write a querry to count the number of employee available in the table.

   vii. Write a query to retrieve the list of employees working in the "development" department.

   Write a query to fetch the department-wise count of employees sorted by department's count in ascending order.

2

94204

12. (a) Define Normalization. Write down the various issues related to non-normalized Relation. Explain the process of Normalization upto 3NF in detail with suitable examples.   CO1-U   (16)

Or

(b) Develop an ER diagram for the given scenario.   CO2-App   (16)

In a botanical survey, an inventory is made of the Swedish flora, i.e., it is investigated where different plants grow. Plants are identified by their Latin names: Anemone nemorosa, Ranunculus ficaria, etc. The survey is made at different sites. A site is described by its name, its type, and its coordinates in the coordinate system. At a site, investigations are performed in 1×1 m squares. Each square also has coordinates, which are measured relative to the site coordinates. For each plant that occurs in a square, the degree of coverage (in percent) is recorded. Chemical analyses of different chemical properties are performed in some of the squares. Which analyses that are performed may vary, but common measurements are pH and the content of different heavy metals. The results of the measurements are given in different units: no unit, ppm, etc. The survey involves a lot of people. Each person has a person number, name, and address. Each square is investigated by one person.

13. (a) Define Concurrency. Explain the different types of Concurrency Control Protocols   CO1-U   (16)

Or

(b) Explain in detail about SQL Facilities to provide Concurrency and Recovery   CO1-U   (16)

14. (a) Insert the following key values in B tree of order 3. 1,2,3,4,5,6,7,8,9,10,11,12 and delete the key value 10,4 with proper explanation.   CO2- App   (16)

Or

(b) Construct a B+ tree of order 3 with the key values 10,20,30,40,50,60,70,80,90,100 and delete the key values 60 and 20   CO2- App   (16)

15. (a) Explain about authentication, authorization and various access control methods   CO1- U   (16)

Or

(b) Discuss how spatial database is used in various applications   CO1- U   (16)

94204