CSE 223 (R-20)

Total No. of Questions : 10] [Total No.of Pages : 02

II/IV B. Tech. DEGREE EXAMINATIONS, AUGUST - 2024

Second Semester

COMPUTER SCIENCE AND ENGINEERING

DATABASE MANAGEMENT SYSTEMS

Time : **Three Hours** Maximum : **70** Marks

Answer ONE question from each Unit. 5x14=70 M

All Questions carry equal marks.

UNIT - I

1. a) Explain in detail Database Management System advantages over file management system.

   b) Design a database for an airline. The database must keep track of customers and their reservations, flights and their status, seat assignments on individual flights and the schedule and routing of future flights. Your design should include and E-R diagram, a set of relational schemas, and a list of constraints, including primary-key and foreign-key constraints.

(OR)

2. What is data model ? Explain different data models with suitable examples. Explore the advantages and disadvantages of each.

UNIT - II

3. Consider the following schema for company database

   Employee (ESSN, Name, Salary, DNo, SuperSSN);

   Department(DName, DNo, MGRSSN); Project(PNo, PName, DNum);

   Works_ON(ESSN, PNo, Hours); Dependent(ESSN, DName, Sex);

   Write the queries in SQL

   (i) List the name of employees with their dependants.

   (ii) Find the name of employees who work in department "CSE".

   (iii) Retrieve the name of managers, dept names and their salaries.

   (iv) Display the names of employees with their project names.

   (v) Display the name of the employees with number of hours working.

   (vi) List the project name and number of employees working on each project.

   (vii) List the name of the employee and department name whose annual salary>50,000.

P.T.O.

(OR)

4. Explain the problems related to decomposition. What is lossless join decomposition ? Explain the same with an example.

UNIT - III

5. Give a brief Query optimization and elicit on Heuristic / Rule based and Systematic/Cost based optimization. Explain these by taking a sample query and optimizing the same.

(OR)

6. a) Explain about hash based indexing with an example.

   b) What is dynamic hashing ? Give the implementation details of it.

UNIT - IV

7. a) Explain the time stamp based protocol for concurrency control in a DBMS.

   b) Discuss about conflict Serializability with an example.

(OR)

8. a) What is 2-phase locking protocol ? Compare 2PL with Strict 2PL protocol.

   b) Give a brief on (i) SQL Injection (ii) Intrusion detection.

UNIT - V

9. a) Give a brief on PL/SQL Trigger. Give syntax and example to explain how to create a trigger. Explain its advantages.

   b) Create a row level trigger for the CUSTOMERS table that would fire for INSERT or UPDATE or DELETE operations performed on the CUSTOMERS (ID, NAME, AGE, ADDRESS, SALARY) table. This trigger will display the salary difference between the old values and new values.

(OR)

10. a) Explain the most important characteristics of PL/SQL ? Explore different data types available in PL/SQL with suitable examples and differences.

    b) Explain the characteristics of logical databases.