2021
B.E. (Computer Science and Engineering)
Seventh Semester
CS-702: Advance Database Systems

Time allowed: 3 Hours                                   Max. Marks: 50

**NOTE**: *Attempt* <u>*five*</u> *questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Explain in brief the following:-

   a) Let us suppose that $R_1$ = DCEGH is a relation which is decomposed from R satisfies the set F of functional dependencies F= {E → G}. What is the strongest normal form currently $R_1$ is in?

   b) Write any four familiar Data Mining techniques.

   c) Write any four drawbacks of object-oriented database.

   d) What is meant by object persistence?

   e) Define database security.

   f) Features of MySql.

   g) What is SQL injection? And how to prevent it?

   h) Explain Data marts.

   i) Difference between ORDBMS and RDBMS

   j) Role of checkpoints in recovery techniques                    (10x1)

## UNIT – I

II. a) State comparison of RDBMS, OODBMS, ORDBMS.

    b) What is data integrity? Explain the types of integrity constraints.          (2x5)

III. a) What is SQL-3? Write in detail about features of SQL3.

     b) Explain concurrency control in distributed database          (2x5)

IV. a) Differentiate between Strict two-phase locking protocol and conservative two-phase locking protocol for concurrency control in databases with the help of an example.

    b) Define Specialization and aggregation with the help of an example and explain Its purpose.                    (2x5)

P.T.O.

## UNIT – II

V.  a) What is the use of GROUP BY clause of SQL? What is the difference between WHERE and HAVING clause in SELECT statement?

   b) Compare the shadow-paging recovery scheme with the log-based recovery schemes in respect to ease of implementation and overhead cost.          (2x5)

VI.  a) Discuss the different types of OLAP operations.

   b) Differentiate between data warehouse and database. Give example.          (2x5)

VII.  Consider the following four relations:
   employee (person-name, street, city)
   works (person-name, company-name, salary)
   company (company-name, city)
   manager (person-name, manager-name)
   Answer the following SQL queries:
   a)  Find the names of all employees who live in the same city and the same street as their managers.
   b)  Find the names of all employees who earn more than every employee of Small Bank Corporation.
   c)  Find all the manager's name along with their company names
   d)  Find names of employees whose salary is greater than the average salary of employees in their company.          (10)

*x-x-x*