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Roll No.

TCS-503

**B. TECH. (CSE) (FIFTH SEMESTER)
MID SEMESTER EXAMINATION, 2022
DATABASE MANAGEMENT SYSTEM**

Time : 1½ Hours

Maximum Marks : 50

Note : (i) Answer all the questions by choosing any *one* of the sub-questions.

(ii) Each question carries 10 marks.

1. (a) How would you define the term DBMS ?
What are the advantages of DBMS over
file based approach ? 10 Marks (CO1)

OR

- (b) Describe the three schema architecture and
explain the need of mapping between
schema levels. 10 Marks (CO1)

2. (a) What is the purpose of E-R diagram ?
Explain the different E-R modeling styles
and the symbols used in each style.

10 Marks (CO2)

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OR

- (b) Construct an E-R diagram for a flight database that stores details about an airline's fleet, flights and seat bookings. Consider the following requirements list :

The airline has one or more airplanes.

An airplane has a model number, a unique registration number, and the capacity to take one or more passengers.

An airplane flight has a unique flight number, a departure airport, a destination airport, a departure date and time, and an arrival date and time.

Each flight is carried out by a single airplane.

A passenger has given names, a surname, and a unique e-mail address.

A passenger can book a seat on a flight.

Make assumption if necessary.

10 Marks (CO2)

3. (a) Define the term constraint. Explain the following constraints with syntax :

10 Marks (CO1)

- (i) Primary key
- (ii) Foreign Key

- (iii) Check
- (iv) Null
- (v) Not Null
- (vi) Unique
- (vii) Default

OR

- (b) Explain the following with their advantages and disadvantages :

10 Marks (CO1)

- (i) Hierarchical database model
- (ii) Network database model
- (iii) Relational database model

4. (a) Explain the terms generalization, specialization and aggregation.

10 Marks (CO1)

OR

- (b) Define data independence and classification of data independence.

10 Marks (CO1)

5. (a) Write short notes on the following :

10 Marks (CO3)

- (i) Domain
- (ii) Composite Attribute
- (iii) Degree of a table
- (iv) Schema
- (v) Data dictionary

- (vi) Tuple
- (vii) Weak entity
- (viii) Super key
- (ix) Primary key
- (x) Candidate key

OR

- (b) Consider a relation EMPLOYEE(emp_no, ename, job, mgr, hiredate, sal, comm., deptno) and DEPT(deptno, dname, location). Write the SQL queries for the following : 10 Marks (CO3)

- (i) List the number of employees working with the company.
- (ii) List the employee name, job, department no. of all employees whose name starts with 'A'.
- (iii) List the name of employees whose salary is greater than ₹ 50,000 but less than ₹ 1,00,000.
- (iv) List the name of employees who are not manager.
- (v) List the name of employees who have joined the company before October 2021.