(Please write your Exam Roll No.) Exam Roll No. .....

END TERM EXAMINATION

FOURTH SEMESTER [B.TECH] JUNE 2024

Paper Code: CIC-210 Subject: **Database** Management System

Time: 3 Hours **Maximum Marks: 75**

Note: Attempt questions in all including Q.No. 1 which is compulsory. Select one question from each Unit.

Q1 a) Give an example of mapping of generalization or specialization into relation schemas Summarize the steps involved in converting the ER constructs to relational schema. **(3)**

b) What is a Weak Entity type? Explain the role of partial key in design of weak entity type. **(3)**

c) Consider a relational schema with the following tables:
Employee (EmpID, EmpName, DeptID)
Department (DeptID, DeptName)
Write a relational calculus expression to retrieve the names of all employees who work in the "Sales" department. **(3)**

d) Why is the domain key normal form (DKNF) known as ultimate normal form? **(3)**

e) Compare and contrast heap files and sorted files in terms of storage efficiency and query performance. When would you choose to use a heap file over a sorted file, and vice versa? **(3)**

UNIT-I

Q2 a) Design an ER — Diagram for a UNIVERSITY database schema taking into account at least five entities and indicate all keys and cardinality constraints and assumptions that are made. **(7)**

b) Define the following with examples: **(5)**
(i) Super key (ii) Candidate key
(iii) Primary key (iv) Foreign key

c) What do you mean by constraints? Differentiate between table and column constraint. Explain with an example. **(3)**

Q3 a) Consider the following tables: **(8)**
works (Pname, Cname, Salary)
lives (Pname, Street, City)
located-In (Cname, City)
write the following queries in SQL:
i) List the names of the people who work for the company 'Wipro' along with the cities they live in.
ii) Find the names of the persons who do not work for 'Infosys'.
iii) Find the people whose salaries are more than that of all of the 'oracle' employees.
iv) Find the persons who works and lives in the same city.

b) Differentiate between DDL, DML, and DCL in SQL. Provide examples for each category and explain their roles in database management. **(4)**

c) Explain the various inner join operations in relational algebra with examples. **(3)**

P.T.O.

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