ocq -172

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FOURTH SEMESTER
END SEMESTER EXAMINATION

Roll No. ....

B.TECH (CSE)
(MAY-2018)

CO/SE 211 DATABASE MANAGEMENT SYSTEM

Time: 3 Hours   Maximum Marks : 70

> **Note:** Attempt any 5 questions. Question no. 1 is compulsory.
> Assume suitable missing data, if any.

Q1 Attempt the following: (7X2=14)
  i.   List the advantages of database environment.
  ii. Draw the 3 schema architecture of DBMS system and label it.
  iii. Composite vs. Atomic attributes
  iv. Explain referential integrity constraint with example.
  v.   Discuss anomalies and its classification.
  vi. Draw the life cycle of a transaction with all possible states.
  vii. What are the conditions for conflicting operations in a schedule.

Q2 (a) A university registrar's office maintains data about the following entities:

1. courses, including number, title, credits, syllabus, and prerequisites;
2. course offerings, including course number, year, semester, section number, instructor(s), timings, and classroom;
3. students, including student-id, name, and program;
4. instructors, including identification number, name, department, and title.

Further, the enrollment of students in courses and grades awarded to students in each course they are enrolled for must be appropriately modeled.

Identify the entities, attributes and relationships. Also, draw an ER diagram for the above problem statement.   14

P.T.O

Q3 (a) Discuss relational calculus. Differentiate between tuple relational calculus and domain relational calculus with example.   8

(b) Consider the following relational schema and answer the following queries using relational algebra:

Dealer (Dealer_no, Dealer_name, Address)

Part (Part_no, Part_name, Color)

Assigned_To (Dealer_no, Part_no, cost)

i.   Find name of dealers that supply both red and yellow parts.
ii.   Find names of dealers who supply all parts.
iii. Find names of dealers that supply whole red parts.   (2X3=6)

Q4 (a) Explain inference rules for functional dependency. For a given relation R{ABCDEF} given that {A→BC, B→E, CD → EF}.Using the rules of functional dependency prove that AD → F.

(b) Write the algorithm steps to find the closure of a set. Compute the closure of the following set F of functional dependencies for relation schema R = {A, B, C, D, E}. A→BC, CD→E, B→D, E→A.
     (2X7=14)

Q5 (a) What are the problems that can occur when concurrent execution of transaction takes place. Discuss with example.

(b) Explain concurrency control based on time stamp ordering. How is it different from multiversion techniques based on time stamp ordering.   (2X7=14)

Q6 Write short notes (Any two):   (2X7=14)
   a. B-tree index files
   b. BCNF vs. 3NF with example
   c. Shared/Exclusive locks

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