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FOURTH SEMESTER
END SEMESTER EXAMINATION

Roll No. .....
B.TECH (CSE)
(MAY-2018)

CO 202 DATABASE MANAGEMENT SYSTEM

Time: 3 Hours Maximum Marks : 40

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

Q1 Attempt the following:

i. Discuss ACID properties in transactions with example.
ii. Briefly explain the classification of database users.
iii. Differentiate between static hashing and dynamic hashing.
iv. How a deadlock is different from a live lock. Explain with example.

(4X2=8)

Q2 (a) Consider the following set of requirements for college database:

A college contains many departments. Each department can offer any number of courses. Many instructors can work in a department. An instructor can work only in one department. For each department there is a Head. An instructor can be head of only one department. Each instructor can take any number of courses. A course can be taken by only one instructor. A student can enroll for any number of courses. Each course can have any number of students.
Identify the entities, attributes and relationships. Also, draw an ER diagram for the above problem statement.

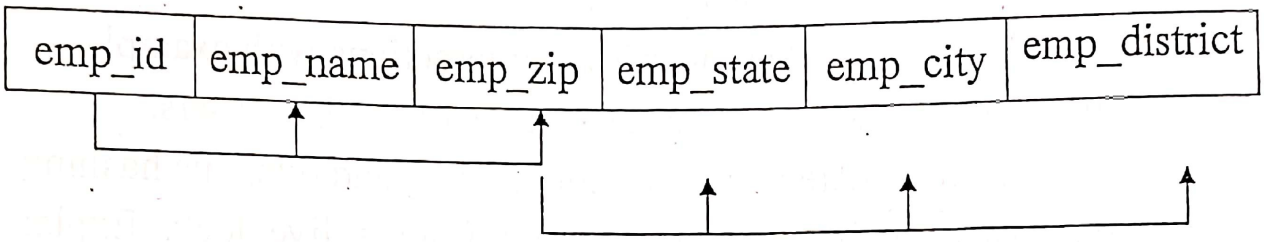
(b) Consider the following schema and write queries in domain relational calculus:
loan(loan number, branch name, amount)
borrower (customer, loan)

P.T.O

i. Find all loan numbers for loans with an amount greater than $1200.

ii. Find the names of all customers who have a loan from the Perryridge branch and find the loan amount. (6+2=8)

Q3 What is the need of normalisation. Discuss 1NF, 2NF and 3NF with example. Consider the following schema and normalize it. (8)



Q4 (a) What is the need of concurrency control techniques. Discuss three major concurrency problems.

(b) List the algorithm steps for testing serializability of a schedule. Test whether the following schedule is serializable or not :

S_f : $r_3(Y)$; $r_3(Z)$; $r_1(X)$; $w_1(X)$; $r_2(Z)$; $r_1(Y)$; $w_1(Y)$; $r_2(Y)$; $w_2(Y)$; $r_2(X)$; $w_2(X)$;

(2X4=8)

Q5 (a) Explain 2 phase locking for guaranteeing serializability. Discuss its variations.

(b) Explain the concept of indexing. Discuss its classification with diagram and example. (2X4=8)

Q6 Write short notes (Any two): (2X4=8)

a. File Processing System vs. Integrated Database
b. Relationship Constraints
c. Types of failure in recovery

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