R16

Code No: 135CA

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
B. Tech III Year I Semester Examinations, May/June - 2019
DATABASE MANAGEMENT SYSTEMS
(Common to CE, EEE, ME, ECE, EIE, MCT, CEE, MSNT)

Time: 3 hours   Max. Marks: 75

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a) What is database management systems? Why we need to use it. [2]
 b) Write the syntax for various commands present in DDL [3]
 c) In what way an IN Clause differs from OR clause [2]
 d) Distinguish between NULL and NOT NULL. [3]
 e) What is schema? Give example. [2]
 f) Describe about the non trivial functional dependency. [3]
 g) What is failure? When it occurs. [2]
 h) Explain the role of serializability using transactions. [3]
 i) Differentiate volatile and non volatile storage. [2]
 j) List out the operations that can be performed on files. [3]

PART - B

(50 Marks)

2.a) Discuss the activities of different database users.
 b) List the steps in proper sequence in order to convert an ER and EER diagram into tables. [5+5]

OR

3.a) Draw and explain three-tier schema architecture of database system.
 b) Describe the client server architecture for the database with necessary diagram. [5+5]

4.a) Explain any three Aggregate functions and Scalar functions with examples.
 b) Discuss the importance of entity integrity and referential integrity constraints. [5+5]

OR

5. Solve the queries for the following database using Relational Algebra
Branch (branch-name, branch-city, assets)
Customer (customer-name, customer-street, customer-only)
Account (account-number, branch-name, balance)
Loan (loan-number, branch-name, amount)
Depositor (customer-name, account-number)
Borrower (customer-name, loan-number)

a) Find all loans of over $1200

b) Find the loan number for each loan of an amount greater than $1200

c) Find the names of all customers who have a loan, an account, or both, from the bank

d) Find the names of all customers who have a loan and an account at bank.

e) Find the names of all customers who have a loan at the Perry ridge branch.

f) Find the names of all customers who have a loan at the Perry ridge branch but do not have an account at any branch of the bank.

g) Find the names of all customers who have a loan and an account at the Perry ridge branch.   [10]

6.a) Elaborate Normalization. Explain any three normal forms with suitable example(s).

 b) What is functional dependency? Explain its types in detail.   [5+5]

OR

7.a) How to compute closure of set of functional dependency? Explain with a suitable example schema.

 b) Explain insertion, deletion, and modification anomalies.   [5+5]

8. Discuss in detail about timestamp based concurrency control techniques.   [10]

OR

9.a) Explain steps of query processing with the help of neat diagram.

 b) Write about the transaction management with SQL using commit, rollback, and save point.   [5+5]

10.a) Is B+ tree, a multi level indexing? How does it differ from B-tree?

  b) Compare dynamic hashing with static hashing.   [5+5]

OR

11. When does a collision occur in hashing? Illustrate various collision resolution techniques.   [10]

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