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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) What is database management systems? Why we need to use it. [2] 1.a) Write the syntax for various commands present in DDL b) [3] c) In what way an IN Clause differs from OR clause [2] Distinguish between NULL and NOT NULL. d) [3] What is schema? Give example. [2] e) f) Describe about the non trivial functional dependency. [3] What is failure? When it occurs. g) [2] Explain the role of serializability using transactions. [3] h) Differentiate volatile and non volatile storage. i) [2] List out the operations that can be performed on files. <u>i</u>) [3] PART - B **(50 Marks)** Discuss the activities of different database users. 2.a) List the steps in proper sequence in order to convert an ER and EER diagram into b) tables. [5+5]OR Draw and explain three-tier schema architecture of database system. 3.a) Describe the client server architecture for the database with necessary diagram. b) [5+5]

4.a) Explain any three Aggregate functions and Scalar functions with examples.

Discuss the importance of entity integrity and referential integrity constraints. b) [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)

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	a)	Find	all	loans	of	over	\$1200
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- 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.

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]

[5+5]

OR

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

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