

DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

Supplementary End Semester Examination – Summer Semester 2023

Course: B. Tech.

Branch: Computer /CSE

Semester: V

Subject Code & Name: (BTCOC501) Database System

Max Marks: 60

Date:07/08/2023

Duration: 3 Hr.

z Instructions to the Students:

1. All the questions are compulsory.
2. The level of question/expected answer as per OBE or the Course Outcome (CO) on which the question is based is mentioned in () in front of the question.
3. Use of non-programmable scientific calculators is allowed.
4. Assume suitable data wherever necessary and mention it clearly.

(Level/CO) Marks

Q. 1 Solve any two of the following.

- | | | |
|---|-----|-----|
| A) Illustrate the database characteristics. How they are different from File systems. | L 2 | 6 M |
| B) Illustrate about integrity and key constraints with suitable examples? | L3 | 6 M |
| C) Explain the importance of Null values in Relational Model. | L2 | 6 M |

Q.2 Solve all two of the following.

- | | | |
|---|----|-----|
| A) Explain in detail, the form of a basic SQL query with a suitable example. | L2 | 6 M |
| B) List out various SET comparison operator in SQL and also write about its use in writing SQL queries. | L3 | 6 M |

Q. 3 Solve any two of the following.

- | | | |
|---|----|-----|
| A) Write SQL Queries for the following set of tables: | L3 | 6 M |
|---|----|-----|

account(account_number, branch_name, balance)

branch (branch_name, branch_city, assets)

customer (customer_name customer_street, customer_city)

loan (loan_number, branch_name, amount)

depositor((customer_name, account_number)

borrower(customer_name, loan_number)

- a. For all customers who have a loan from the bank, find their names and loan numbers with the attribute loan_number replaced by loan_id.
- b. Find the names of all customers whose street address includes the substring 'Main'.
- c. List loan data, ordered by decreasing amounts, then increasing loan numbers.

B) Write SQL Queries for the following set of tables: **L3** **6 M**

**EMPLOYEE (FNAME, MINIT, LNAME, SSN, BDATE, ADDRESS, SEX, SALARY, #SUPERSSN, #DNO),
DEPARTMENT (DNAME, DNUMBER, #MGRSSN, MGRSTARTDATE),
DEPT_LOCATIONS (#DNUMBER, DLOCATION),
PROJECT (PNAME, PNUMBER, PLOCATION, #DNUM),
WORKS_ON (#ESSN, #PNO, HOURS),
DEPENDENT (#ESSN, DEPENDENT_NAME, SEX, BDATE, RELATIONSHIP)**

- a. Retrieve the name and address of all employees who work for the ‘Research’ department**
- b. Retrieve the birthdate and address of the employee(s) whose name is ‘Raj V Naik’**
- c. Retrieve all the attributes of an EMPLOYEE and the attributes of the DEPARTMENT he or she works in for every employee of the ‘Research’ department**

C) By considering an example describe various data update operations in SQL. **L2** **6 M**

Q.4 Solve all two of the following.

- A) State BCNF. How does it differ from 3NF?** **L2** **6 M**
- B) Explain insertion, deletion and modification anomalies with suitable examples.** **L2** **6 M**

Q. 5 Solve any two of the following.

- A) Explain in detail about internal hashing Techniques.** **L2** **6 M**
- B) Discuss in detail about cluster and Multilevel indexes.** **L2** **6 M**
- C) Explain Concurrency control with locking methods.** **L2** **6 M**

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