

**BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION)**

**CLASS: BE
BRANCH: CSE**

**SEMESTER: IV
SESSION : SP/2019**

SUBJECT : CS4205 DATABASE MANAGEMENT SYSTEM

TIME: 1.5 HOURS

FULL MARKS: 25

INSTRUCTIONS:

1. The total marks of the questions are 30.
 2. Candidates may attempt for all 30 marks.
 3. In those cases where the marks obtained exceed 25 marks, the excess will be ignored.
 4. Before attempting the question paper, be sure that you have got the correct question paper.
 5. The missing data, if any, may be assumed suitably.
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- Q1 (a) What is data abstraction? What are various types of data abstraction? What are different types of database schema? [2]
(b) List the various components of DBMS and discuss various Query processor components. [3]
- Q2 (a) What is entity type? Explain different types of entity type. What are different types of attributes? [2]
(b) Explain the concept of Generalization and aggregation with suitable example [3]
- Q3 (a) What is derived relation? Explain with suitable example. [2]
(b) What is Join type and Join condition? Explain various join types with example. [3]
- Q4 (a) Explain how a nested subquery is used to perform test for set membership. [2]
(b) What is cursor? When and how it is used in embedded SQL? Explain with suitable example. [3]
- Q5 (a) Give the formal definition of Relational Algebra. [2]
(b) Explain rename operation, Cartesian product and division operation with suitable example in Relational Algebra. [3]
- Q6 Consider the following two relations: [5]
Loan : branch_name, loan_no, amount
Borrower: customer_name, loan_no
Depositor: customer_name, account_no.
Write queries in TRC for following:
(i) Find branch_name, loan_no and amount for loans over 5000.
(ii) Find the loan_no of each loan of an amount greater than 5000.
(iii) Find the name of all customers who have a loan at Ranchi branch.
(iv) Find name of all customers who have a loan, an account or both at the bank (use borrower and depositor relation)
(v) Find name of all customers who have an account at the bank but does not have loan from the bank. (use borrower and depositor relation)

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