BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP2023)

CLASS: BTECH
BRANCH: CSE

SEMESTER : IV
SESSION : SP2023

SUBJECT: CS237 DATABASE MANAGEMENT SYSTEM

TIME: 02 Hours

FULL MARKS: 25

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
4. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates

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Q.1(a)	Explain the difference between logical and physical data independence using suitable diagram.	[2]	1	4
Q.1(b)	What is Trigger in SQL and how it is constructed? Discuss with an example.	[3]	2	2
Q.2(a)	*loan* (*loan_number*, *branch_name*, *amount*) *borrower* (*customer_name*, *loan_number*) *account* (*account_number*, *branch_name*, *balance*) *depositor* (*customer_name*, *account_number*) Construct a view consisting of branches and their customer names for the above database.	[2]	1	5
Q.2(b)	Explain various join operations with suitable relations	[3]	2	4
Q.3(a)	Differentiate between a unary and binary relationship using an E-R diagram	[2]	1	4
Q.3(b)	Consider the following relational schema *employee(empno, name, office, age)* *book(isbn, title, authors, publisher)* *loan(empno, isbn, date)* write the following queries in relational algebra a. Find the names of employees who have borrowed a book published by McGrwa-Hill. b. Find the names of employees who have borrowed more than five different books published by McGraw-Hill.	[3]	2	4
Q.4(a)	Differentiate between Primary, Candidate and Super Key with suitable example.	[2]	2	4
Q.4(b)	A database of Banking enterprise is given, answer the queries below using SQL: Account(Acc_no, branch_name, balance) Branch(branch_name, branch_city, assets) Customer(Cust_name, Cust_city, Cust_Street) Loan(Loan_no, branch_name, amount) (i) Retrieve the set of names and cities of customers who have a loan at 'Mesra' branch. (ii) Display Number of accounts with balances between 700 and 900. (iii) Retrieve the set of names of branches whose assents are greater than assets of 'Lalpur' branch	[3]	2	4
Q.5	Design and draw a complete E-R diagram for a UNIVERSITY database assuming suitable data-base requirements and constraints. Also indicate the cardinality ratio for the relationships in the diagram.	[5]	1	5

::::::23/02/2023::::::M