Enroll. No._____

MARWADI UNIVERSITY

Faculty of Technology

CE/IT B.Tech

SEM: 3 **MU FINAL REMEDIAL** **April: 2023**

Subject: - DMS (01CE1302) **Date:-17/05/2023**

Total Marks:-100 **Time: -2:00 PM to 5:00 PM**

Instructions:

1. **All Questions are Compulsory.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**
4. **Do not write/sign/indication/tick mark anything other than Enroll No. at a specific place on the question paper.**

Question: 1.

(a) Objective MCQ [10]

1) In an E-R diagram double lines indicate
   a) Total participation
   b) Multiple participation
   c) Cardinality N
   d) None of the above

2) Which of the following is not a property of transactions?
   a) Atomicity
   b) Concurrency
   c) Isolation
   d) Durability

3) The keyword to eliminate duplicate rows from the query result in SQL is
   a) DISTINCT
   b) NO DUPLICATE
   c) UNIQUE
   d) None of the above

4) In an E-R diagram an entity set is represent by a
   a) rectangle
   b) ellipse
   c) diamond box
   d) circle

5) E-R model uses this symbol to represent weak entity set ?
   a) Dotted rectangle
   b) Diamond
   c) Doubly outlined rectangle
   d) None of these

6) SQL stands for_____
   a) Structured Query Language
   b) Sequential Query Language
   c) Structured Question Language
   d) Sequential Question Language

7) Which among the following is not the part of Transaction Life Cycle?
   a) Failed
   b) Partially Commit
   c) Checkpoint
   d) Abort

8) Which functions provides the total of column values.
   a) Sum
   b) Min
   c) Max
   d) Div

9) _____ function in SQL capitalize first character of each word
   a) Upper
   b) Capital
   c) MakeCap
   d) Initcap

10) Fifth Normal form is concerned with
   a) Functional dependency
   b) Multivalued dependency
   c) Join dependency
   d) Domain-key

(b) Short Questions [10]

1) Draw symbols for following in E-R diagram: Relationship set, Derived attribute.
2) State True or False: Joins can be used to retrieve data from multiple tables.
3) Write a symbol for project operation in relational algebra.
4) New column can be added to the existing table using _____SQL command.
5) Full form of DDL.
6) Write a symbol for selection operation in relational algebra.
7) Define Schema.
8) What is the full form of DBMS?
9) DML stands for_____
10) State true or false: Any relation schema that satisfies BCNF also satisfies 3NF.

Question: 2.

(a) Draw and explain three level architecture (Abstraction) of DBMS. [08]

(b) Draw an E-R diagram for University Management System. Assume relevant entities and attributes for the given system. [08]

OR

(b) Draw an E-R diagram for Hospital Management System. Assume relevant entities and attributes for the given system. [08]

Question: 3.

(a) List all the Relational algebra operators. Explain the working of Cartesian product Operation and the Rename Operation with an appropriate example. [08]

(b) Explain following terms. [04]
(1) Primary Key (2) Foreign Key

(c) Briefly explain applications of DBMS. [04]

OR

(a) Explain the working of Division Operation and theUnion Operation with an appropriate example. [08]

(b) Explain following terms. [04]
(1) NOT NULL Constraint (2) Check Constraint

(c) Write Relational algebra for below: [04]
branch (branch_name, branch_city, assets)
customer (customer_name, customer_street, customer_city)
account (account_number, branch_name, balance)
loan (loan_number, branch_name, amount)
depositor (customer_name, account_number)
borrower (customer_name, loan_number)
1) Find all loans of over $1200
2) Find the loan number for each loan of an amount greater than $1200
3) Find the names of all customers who have a loan, an account, or both, from the bank
4) Find the names of all customers who have a loan at the Rajkot branch.

Question: 4

(a) What is Normalization? Explain 1NF,2NF and 3NF in detail. [08]

(b) Discuss generalization and specialization in E-R diagram with suitable diagram. [08]

OR

(a) List and discuss ACID properties of transaction. [08]

(b) Write short note on database triggers in PL/SQL. [08]

Question: 5.

(a) Write a note on view serializability. [06]

(b) Explain two phase locking protocol in detail. [06]

(c) Explain different types of Outer join. [04]

OR

(a) Write a note on conflict serializability. [06]

(b) Explain two phase commit protocol in detail. [06]

(c) Describe GRANT and REVOKE commands. [04]

Question: 6.

(a) Define Transaction. Explain transaction states diagram. [08]

(b) Explain and discuss Security v/s Integrity. [04]

(c) Discuss any 4 aggregate functions with example. [04]

OR

(a) Consider a relation R (A,B,C,D,E) with following functional dependencies: [08]
$A \rightarrow BC$, $CD \rightarrow E$, $B \rightarrow D$, $E \rightarrow A$.
- Find closure of A.
- Find closure of CD
- Find Closure of B
- Find Closure of BC

(b) Explain and discuss Authentication v/s Authorization. [04]

(c) Discuss any 4 String functions with example. [04]

---Best of Luck---

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– Bloom'S Taxonomy Report –

Sub: DMS
Sem.:3
Branch: CE/IT

Que. Paper weightage as per Bloom's Taxonomy

LEVEL	% of weightage	Question No.	Marks of Que.
Remember/Knowledge	23.255814	Q1(a,b),Q3(b,or-b,c),Q5(c,or-c)	40
Understand	46.511628	Q2(a),Q3(a,or-a),Q4(a,or-a,or-b),Q5(a,b,or-a,or-b),Q6(a)	80
Apply	18.604651	Q2(b,or-b),Q4(b),Q6(c,or-c)	32
Analyze	4.6511628	Q6(b,or-b)	8
Evaluate	6.9767442	Q3(or-c)	12
Higher order Thinking/ Creative	0		0

Chart/Graph of Bloom's Taxonomy