

**MARWADI UNIVERSITY****Faculty of Technology**

CE/IT

B.Tech

SEM: 3**MU FINAL EXAM/ MU FINAL REMEDIAL****December: 2022****Subject: - DBMS (01CE0302)****Date:-12/12/2022****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.**

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 the Union 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---

– 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