Enroll. No._____

MARWADI UNIVERSITY

Faculty of TECHNOLOGY

DEPARTMENT OF COMPUTER ENGINEERING AND INFORMATION TECHNOLOGY

B.TECH **SEM: 3** **WINTER: 2017**

Subject: - DATABASE MANAGEMENT SYSTEM (01CE0302) **Date:-24/11/2017**

Total Marks:-100 **Time: - 03:00 hours**

Instructions:

1. **All Questions are Compulsory.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Question: 1.

(a) [10]

1.Every attribute has some predefined value scope that is called:
A. Tuples
B. Tables
C. Attribute Domain
D. Relation Schema

2.An attribute of a table cannot hold multiple values is property of
A.1NF
B. 2NF
C. 3NF
D. 4NF

3.In an ER diagram "double rectangles" represents:
A. Relationship Set
B. Weak Entity Set
C. Identifying Relationship
D. Derived attribute.

4. Which of the following is not a Storage Manager Component.
A. Buffer Manager
B. File Manager
C. Transaction Manager
D. Logical Manager

5.The level of data abstraction which describes how the data is actually stored is :
A. Conceptual level
B. Physical level
C. File level
D. None

6. In a two-phase locking protocol, a transaction release locks in which of the following phase.
A. Shrinking phase
B. Growing phase
C. Running phase
D. Initial phase

7.Prevention of access to the database by unauthorized users is referred to as:
A. Integrity
B. Security
C. Productivity
D. Reliability

8.Transaction are initiated by BEGIN Transaction and terminated by:
A. By Commit Transaction
B. By Rollback Transaction
C. Either by Commit Transaction or by Rollback Transaction
D. None of these

9.Which type of Join returns all rows that satisfy the join condition
A. Inner Join
B. Outer Join
C. Cross Join
D. Semi Join

10.PL/SQL stands for :
A. Programming Language/SQL
B. Procedural Language/SQL
C. Portable Language/SQL
D. None of the above

(b) Short Que. (answer in one sentence) [10]
Define:
1) DBA
2) Primary key
3) Deadlock
4) Cascade less Rollback
5) Schema
6) DBMS

7) What is data abstraction?
8) What is shadow copy?
9) List out properties of transaction.
10) What is necessary and sufficient condition for a relation to be in 3rd Normal Form?

Question: 2.

(a) With neat sketch, explain the structure of DBMS. [08]

(b) List all Relational Algebra Operators & explain any 2 with example. [08]

OR

(b) List out types of attributes and explain them with appropriate examples. [08]

Question: 3.

(a) Draw E-R model for Hotel Management System [08]

(b) What are the problems faced by un-normalized database design? Explain with example. [04]

(c) Write **SQL queries** for the following relations: [04]
T1 (Empno, Ename , Salary, Designation)
T2(Empno,Deptno.)
(1) Display all the details of the employee whose salary is lesser than 10000 and date of birth is in the month 'MAY'.
(2) Display the Deptno in which Employee Seeta is working.
(3) Find the total salary of all the employees.
(4) Add a column address in T2 relation with data type varchar2(25).

OR

(a) Consider the following scenario and design E-R model accordingly. [08]

A college contains many departments. Each department can offer any number of courses. Many instructors can work in a department. An instructor can work only in one department. For each department there is a Head. An instructor can be head of only one department. Each instructor can take any number of courses. A course can be taken by only one instructor. A student can enroll for any number of courses. Each course can have any number of students.

(b) Considering a relation, explain normalization till 3rd Normal form. [04]

(c) Write **Relational Algebra** for the following relations: [04]
T1 (Empno, Ename , Salary, Designation)
T2(Empno,Deptno.)
(1) Display all the details of the employee whose salary is lesser than 10000 and date of birth is in the month 'MAY'.
(2) Change the designation of Geeta from 'Manager' to 'Senior Manager'.
(3) Find the total salary of all the employees.
(4) Display the Deptno in which Employee Seeta is working.

Question: 4.

(a) Define transaction. Explain various states of transaction with suitable diagram. [08]

(b) What is locking? Explain different types of locks with example. [04]

(c) What is security of data? Illustrate Data encryption with an appropriate example. [04]

OR

(a) What is intension locking? Explain Multiple Granularity in detail. [08]

(b) Explain ACID properties of transactions. [04]

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

Question: 5.

(a) What is serialization? Explain Conflict Serialization in detail. [08]

(b) Explain with syntax: Primary key, Foreign Key, Unique and NOT NULL constraint. [04]

(c) What is a view? Explain advantages of view in detail. [04]

OR

(a) How can we ensure consistency in current transaction? Explain View Serialization in detail. [08]

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

(c) Explain log based recovery method. [04]

Question: 6.

(a) What is a cursor? Explain explicit cursor in detail. [08]

(b) Explain cross join, self join and inner join with and example [04]

(c) Discuss the role of database administrator (DBA). [04]

OR

(a) What is a Trigger? Explain working of trigger and its need in detail. [08]

(b) Explain Outer Join and its type in detail. [04]

(c) Explain the different types of database users and their data access methods. [04]

---Best of Luck---

Your Que. Paper weight-age as per Bloom's Taxonomy

No.	Que. Level	% of weight-age	
		% of weight -age	Que. No.
1	Remember/Knowledge	20	Q1(a),Q1(b),Q2(a),Q3(b),Q5(c),
2	Understand	30	Q2(b),Q3(a), Q3(c), Q5(b), Q5(c), Q6(c)
3	Apply	25	Q3(a),Q4(a),Q4(b),Q4(c),Q3(c)
4	Analyze	15	Q3(a),Q3(b),Q5(a),Q5(b) Q6(b),Q6(c)
5	Evaluate	10	Q6(a)
6	Higher order Thinking	--	

GRAPH: