



MARWADI UNIVERSITY

Faculty of Technology

Information Technology/Computer Engineering

B.TECH

SEM: 3

Enroll. No. _____

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) Objective MCQ

[10]

- 1) Which of the following is not a property of transactions?
(A) Atomicity
(B) Concurrency
(C) Isolation
(D) Durability
- 2) Relational Algebra does not have
(A) Selection operator
(B) Projection operator
(C) Aggregation operators
(D) Division operator
- 3) Checkpoints are a part of
(A) Recovery measures
(B) Security measures
(C) Concurrency measures
(D) Authorization measures
- 4) The language that requires a user to specify the data to be retrieved without specifying exactly how to get it is
(A) Procedural DML
(B) Non-Procedural DML
(C) Procedural DDL
(D) Non-Procedural DDL
- 5) Precedence graphs help to find a
(A) Serializable schedule
(B) Recoverable schedule
(C) Deadlock free schedule
(D) Cascadeless schedule
- 6) The clause in SQL that specifies that the query result should be sorted in ascending or descending order based on the values of one or more columns is
(A) Order by
(B) Group by
(C) Having
(D) View

- 7) In an E-R diagram double lines indicate
 - (A) Total participation
 - (B) Multiple participation
 - (C) Cardinality N
 - (D) None of the above
- 8) Fifth Normal form is concerned with
 - (A) Functional dependency
 - (B) Multivalued dependency
 - (C) Join dependency
 - (D) Domain-key
- 9) A transaction is in _____ state after the final statement has been executed.
 - (A) partially committed
 - (B) active
 - (C) committed
 - (D) none of the above
- 10) 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

(b) Short Que. (answer in one sentence)

[10]

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

Question: 2.

- (a) Draw and explain three level architecture (Abstraction) of DBMS. [08]
- (b) List all the Relational algebra operators. Explain the working of Cartesian product Operation and the Difference Operation with an appropriate example. [08]

OR

- (b) Explain following terms. [08]
 - (1) Primary Key (2) NOT NULL Constraint
 - (3) Foreign Key (4) Attributes & Tuples

Question: 3.

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

- (b) Given relation R with attributes A,B, C,D,E,F and set of FDs as **A--> BC, E--> CF, B-->E and CD--> EF.** [04]
- 1) Find out closure {A,B} + of the set of attributes.
 - 2) Find out closure {A}+ of the set of attributes.
- (c) Discuss any four aggregate functions with example. [04]

OR

- (a) What is Normalization? Explain 1NF,2NF and 3NF in detail. [08]
- (b) Write a note on mapping cardinality in E-R Diagram. [04]
- (c) Explain the working of Select Operation and Project Operation with an appropriate example [04]

Question: 4.

- (a) Write a note on conflict serializability. [08]
- (b) List and discuss ACID properties of transaction. [04]
- (c) What is Views? Give advantage of views and syntax of it. [04]

OR

- (a) State the differences between PL/SQL and SQL. Write structure of PL/SQL. [08]
- (b) Define Transaction. Explain transaction states diagram. [04]
- (c) Describe GRANT and REVOKE commands. [04]

Question: 5.

- (a) Explain two phase locking protocol in detail. [08]
- (b) We have following relations [04]
- EMP (emp_no, ename, jobtitle, manager_no, hiredate, sal, comm, deptno)
- DEPT (deptno, dname, loc)

Answer the following queries in SQL.

- i) Find the Employees working in the department 10, 20, 30 only.
 - ii) Find Employees whose names start with letter A or letter a.
 - iii) Find Employees along with their department name.
 - iv) Find the Employees who are working in Smith's department
- (c) Write short note on Log based recovery. [04]

OR

- (a) Write a note on view serializability. [08]
- (b) We have following relations [04]
- Account (acc_no, name, city, balance, loan_taken)
- Loan (loan_no, acc_no, loan_amt, intrest_rate, loan_date, remaining_loan)
- 1) Display the sum of balance of account holders who's live in same city 'Mehsana' using group by clause.
 - 2) Display the information about account where balance is less than total balance of all account holders.
 - 3) Displays the information of account holders whose loan amount and balance both are same.
 - 4) Display the name of city, remaining loan amount, account, date of loan and loan number of account holders.

- (c) Write query for the following: [04]
- (1) To create a table.
 - (2) To insert values in table.
 - (3) To change name of table.
 - (4) To drop the table.

Question: 6.

- (a) Discuss generalization and specialization in E-R diagram with suitable diagram. [08]
(b) Write a note on 2 phase commit protocol. [04]
(c) Briefly explain applications of DBMS. [04]

OR

- (a) Write short note on database triggers in PL/SQL. [08]
(b) Explain different types of Outer join. [04]
(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.

---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	23.25	Q1(a),Q1(b),Q3(or a),Q4(c) , Q6(c) ,Q6(or b)
2	Understand	27.90	Q2(a),Q2(b), Q3(c) , Q4(b), Q4(or b), Q4(or c), Q5(a),Q6(a)
3	Apply	23.25	Q3(or b),Q4(a), Q5(c) , Q5(or a),Q5(or c),Q6(b), Q6(or a)
4	Analyze	11.62	Q2(or b),Q3(or c)Q4(or a)
5	Evaluate	9.30	Q3(b),Q5(b),Q5(or b),Q6(or c)
6	Higher order Thinking	4.65	Q3(a)

GRAPH:

