Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA- IInd SEMESTER–EXAMINATION –JUNE - 2012

Subject code: 620006 **Date: 11/06/2012**

Subject Name: Database Management Systems-II

Time: 10:30 am – 01:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Explain the concept of transaction and discuss the typical states of transaction by giving an example. **07**

(b) Consider the following database schema: **07**

DEPT (dno, dname, dlocation)

EMPLOYEE (eno, ename, gender, city, dno, salary)

Give relational algebra expressions for each of the following query.

1) Display the dept details of department 'MCA'.
2) Display ename and salary of employees whose salary is greater than Rs. 12000.
3) Display the name of female employees whose dno is 20.
4) Display dname and ename of all employees.
5) Display the dno, dname, eno, ename of all employees whose dname is 'MCA' and city is 'Mumbai'.
6) Find out gender wise total number of employees.
7) Display the name of employees who don't live in 'Mumbai' city.

Q.2 **(a)** Define the following **07**

1) Authorization
2) Serial schedule
3) Inter-query parallelism
4) Semi-Join
5) Relational algebra
6) Evaluation plan
7) Query graph

(b) Differentiate between discretionary security scheme and mandatory security scheme. **07**

OR

(b) Explain the basic set-theoretic operations of relational algebra with notation and example. **07**

Q.3 **(a)** Discuss the advantages and problems of concurrent execution of transactions. **07**

(b) Differentiate between immediate update and deferred update recovery techniques. **07**

OR

Q.3 **(a)** What is locking? How does a lock work? Explain the different types of locks. **07**

(b) Describe how transaction log file is used in forward and backward recovery. **07**

Q.4	**(a)**	Differentiate between parallel databases and distributed databases. Explain the architecture of parallel database.	**07**
	(b)	What is data allocation? Compare different strategies of data allocation for distributed databases.	**07**

OR

Q.4	**(a)**	Explain & differentiate the speed-up and scale-up property of parallel databases.	**07**
	(b)	Explain advantages and disadvantages of object oriented databases.	**07**
Q.5	**(a)**	How does optimistic concurrency control method differ from other concurrency methods? Why they are also called validation methods?	**07**
	(b)	What is query processing? Explain the typical steps of query processing.	**07**

OR

Q.5	**(a)**	What are the types of damages than can take place to the database? Explain.	**07**
	(b)	What is query optimization? Explain query optimizer module with block diagram.	**07**

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