

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA - SEMESTER-II • EXAMINATION – WINTER 2015

Subject code: 620006

Date :04-12-2015

Subject Name: Database Management System

Time:02.30 pm to 05.00 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) What is Transaction? List various states of a transaction. Explain why each State transition may occur. **07**
- (b) Describe briefly Relational Algebra. Explain various Relational algebra operators giving example. **07**
- Q.2** (a) Explain Serializability. **07**
- (b) Differentiate between Deferred Database Modification and Immediate Database Modification recovery techniques. **07**
- OR
- (b) Differentiate between Discretionary Access Control and Mandatory Access Control method. **07**
- Q.3** (a) 1. List various phases of Two Phase Locking protocol. Give benefit and disadvantages of strict two phase locking protocol. **04**
2. Discuss log based recovery. **03**
- (b) What is Query Processing? List various stages of query Decomposer. Explain in brief Query Analysis. **07**
- OR
- Q.3** (a) 1. Explain concept of Wait-die and Wound-wait deadlock prevention schemes. **04**
2. Discuss Timestamp ordering protocol. **03**
- (b) Discuss various cost components of Query optimization and explain cost function for Select. **07**
- Q.4** (a) What is distributed Databases? List desired properties and functions of Distributed databases. **07**
- (b) Explain parallel databases with advantages and disadvantages. **07**
- OR
- Q.4** (a) Define Deadlock. Discuss deadlock prevention and detection method. **07**
- (b) Explain Object Oriented DBMS with advantages and disadvantages. **07**
- Q.5** (a) Explain Atomicity and Durability property of transaction giving an example and show implementation of this property using shadow paging method. **07**
- (b) What is database security? Discuss various threats to database security. **07**
- OR
- Q.5** (a) Differentiate between Database Buffering and Log Record Buffering techniques. **07**
- (b) What is Query Optimization? Explain heuristic query optimization. **07**
