

**GUJARAT TECHNOLOGICAL UNIVERSITY****MCA Integrated- SEMESTER– III EXAMINATION – WINTER 2019****Subject Code: 4430604****Date:02/12/2019****Subject Name: Database Management System****Time: 10:30 AM TO 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)** Answer the following:
- (i) Explain materialized view. **02**
  - (ii) Differentiate between authorization and authentication. **02**
  - (iii) Write down the steps of deadlock recovery. **03**
- (b)** Answer the following:
- (i) Define rollback. What is cascading rollback? **02**
  - (ii) What is checkpoint? State its use. **02**
  - (iii) Differentiate the following: Deferred Update Vs. Immediate Update. **03**
- Q.2 (a)** What is Query Processing? Draw its block diagram and explain each step in brief. **07**
- (b)** What is Database Atomicity and Durability? Show how database implements these properties via shadow copy scheme. **07**
- OR**
- (b)** Discuss any five equivalence rules for transformation of relational expressions. **07**
- Q.3 (a)** Explain external merge-sort algorithm of query processing. **07**
- (b)** What is transaction? Explain its states with diagram. **07**
- OR**
- Q.3 (a)** Define Serializability? Describe conflict serializability in detail. **07**
- (b)** What is Concurrency? State and describe three prime issues of concurrency control. **07**
- Q.4 (a)** What are the types of lock? Explain two-phase locking protocol in detail. **07**
- (b)** State and explain the types of database failures. **07**
- OR**
- Q.4 (a)** Explain backward recover (UNDO) operation in detail. **07**
- (b)** Define deadlock. Explain its prevention strategies in detail. **07**
- Q.5 (a)** Describe the concept of mandatory access control. **07**
- (b)** Define parallel database. Explain its advantages and disadvantages. **07**
- OR**
- Q.5 (a)** Explain the problem of phantom phenomenon with example. **07**
- (b)** Define ORDBMS. List its features, advantages and disadvantages. **07**

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