

GUJARAT TECHNOLOGICAL UNIVERSITY
MCA Integrated - SEMESTER- III- EXAMINATION – WINTER 2018

Subject Code: 4430604**Date: 06-12-18****Subject Name: Database Management Systems****Time: 10.30 am to 1.00 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)** Define the following terms. **07**
1. Encryption
 2. Starvation
 3. Cascadeless schedule
 4. Transaction failure
 5. Distributed Database
 6. Shadow Paging
 7. Sorting
- (b)** (i). Describe the ACID properties of a Transaction, briefly **04**
(ii) Define Transaction. Mention the various states of a Transaction. Describe with a State Diagram. **03**
- Q.2 (a)** Describe how the Query processing is done in sorting. Explain the same using the External merge-sort algorithm **07**
- (b)** Explain materialized view and types of view maintenance. **07**
- OR**
- (b)** Explain deadlock prevention schemes in detail. **07**
- Q.3 (a)** Define Query Processing. Explain the steps involved in Query processing with a neat diagram. **07**
- (b)** Explain Phantom Phenomenon with example **07**
- OR**
- Q.3 (a)** Why concurrency control is needed? Explain two phase protocol in detail. **07**
- (b)** Explain Conflict Serializability and View Serializability with example. **07**
- Q.4 (a)** Explain in detail about the (a) Audit Trail (b) Firewalls **07**
- (b)** What are the challenges of ORDBMS design? What are the main features of ORDBMS? **07**
- OR**
- Q.4 (a)** What is database security? Discuss various threats to database security. **07**
- (b)** Differentiate the following: Parallel Database Vs. Distributed Database. **07**
- Q.5 (a)** What are checkpoints? Explain database recovery performed using checkpoints **07**
- (b)** Briefly explain different architectural models of parallel databases. **07**
- OR**
- Q.5 (a)** What is equivalence rule? Discuss any six transformation rules for query optimization. **07**
- (b)** Why database recovery is needed? Explain deferred update and immediate update in detail with examples. **07**
