

**GUJARAT TECHNOLOGICAL UNIVERSITY****MCA Integrated - SEMESTER-III • EXAMINATION – SUMMER • 2015****Subject Code: 4430604****Date: 12-05-2015****Subject Name: Database Management Systems (DMS)****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)** Explain the following terms: **07**  
 1. Sorting 2. Starvation 3. Data Encryption  
 4. Firewall 5. Checkpoints 6. Materialized views 7. Shadow Paging
- (b)** What is transaction? Explain transaction state in details. **07**
- Q.2 (a)** Fill in the blanks. **07**  
 1. A transaction is in \_\_\_\_\_ state after the final statement has been executed.  
 2. The Acid Property of transaction are (a) \_\_\_\_\_, (b) \_\_\_\_\_, (c) \_\_\_\_\_ and (d) \_\_\_\_\_.  
 3. Two-phase locking protocol ensures \_\_\_\_\_ serializability.  
 4. \_\_\_\_\_ include the detail algorithm for each operation in the expression and how the execution of the operations is coordinated  
 5. A transaction must preserve the \_\_\_\_\_ a database after the execution.  
 6. If a lock is acquired on a data item to perform a write operation, it is \_\_\_\_\_ lock.  
 7. An object database is a database management system in which information is represented in the form of \_\_\_\_\_.
- (b)** Explain Deadlock detection and prevention in detail. **07**
- OR**
- (b)** Differentiate between Recoverable Schedule and Cascade-less Schedule **07**
- Q.3 (a)** Explain the Timestamp methods for concurrency control. **07**  
**(b)** Differentiate between immediate updates and differed updates **07**
- OR**
- Q.3 (a)** What is Concurrency? Explain the Serializability in detail. **07**  
**(b)** What is database recovery? What is meant by forward and backward recovery? Explain with an example. **07**
- Q.4 (a)** Discuss the different types of transaction failure that may occur in a database environment. **07**  
**(b)** What do you mean by the query processing? What are their objectives? **07**
- OR**
- Q.4 (a)** What is Access control? Explain the types of access control with example. **07**  
**(b)** Explain the typical phases of the query processing **07**
- Q.5 (a)** What are basic query optimization strategies? List out the different technique. **07**  
**(b)** Explain the architecture of parallel database system. **07**
- OR**
- Q.5 (a)** Describe the query optimization with detail block diagram. **07**  
**(b)** Explain the Distributed database system design. **07**

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