**Assignment (Optional) Submission Date 23/05/2024**

**Indexing and Hashing**

1. Basic Concepts
2. Ordered Indices
3. Dense Index
4. Sparse Index
5. Primary and Secondary Index
6. B+-Tree Index Files
7. Update on B+ Tree
   1. Insertion
   2. Deletion
8. Static Hashing
9. Dynamic Hashing
10. Comparison of Ordered Indexing and Hashing

**Concurrency Control and Deadlock**

1. What is transaction? Explain the ACID Properties.
2. Explain various locking methods with examples.
3. Define ACID. Explain about scheduling in transaction management method.
4. Define Concurrency control. Explain different concurrency control.
5. Deadlocks
   1. Starvation
   2. Deadlock Handling
   3. Deadlock prevention
   4. Deadlock Detection
   5. Deadlock Recovery

**Database System Architectures**

1. Centralized and Client-Server Systems
2. Server System Architectures
   * Transaction server
   * Data Server
3. Parallel Systems
   * Speedup
   * Scaleup
   * Factors Limiting Speedup and Scaleup
4. Distributed Systems
   * Trade-offs in Distributed Systems
   * Implementation Issues for Distributed Databases