Unit 5 - Transaction Processing and Concurrency Control

1. What is transaction? Give ACID properties of transaction.
2. Explain different states of transaction.

   Draw and Explain abstract transaction model.
3. Explain different states of transaction.
4. Give advantages and disadvantages of concurrent execution of transactions.
5. Describe the following terms

   a. Schedule
   b. Serial Schedule
   c. Equivalent Schedules
   d. Serializable Schedule
   e. Recoverable Schedule

6. Describe the following terms

   a. Conflict Equivalent Schedule
   b. Conflict Serializable Schedule
   c. View Equivalent Schedule
   d. View Serializable Schedule

7. Explain Conflict Serializability
8. Explain View Serializability
9. Compare recoverable schedule and non-recoverable schedule.
10. Describe the following terms

    a. Cascading Rollback
    b. Cascadeless Schedules
11. Give mechanism for testing serializability.
12. What is precedence graph? Give the uses of precedence graph.
13. Explain Lock-based protocols for concurrency control.
14. What are different locking modes used in lock-bases protocols? Give compatibility matrix.
15. Give pros and cons of Lock-based protocols for concurrency control.
16. Explain Two Phase locking protocol.
17. Explain Strict Two Phase locking protocol.
18. Explain Rigorous Two Phase locking protocol.
19. Compare different variants of Two Phase locking protocol.
20. Explain Lock Conversion and Automatic Acquisition of Locks and

21. How locking can be implemented?
22. Explain Graph-based protocols for concurrency control.
23. Explain Timestamp-Based Protocols for concurrency control.
24. How read operation is performed using Timestamp-Based Protocols for concurrency control.
25. How write operation is performed using Timestamp-Based Protocols for concurrency control.
26. Explain Thomas' Write rule.
27. Compare Timestamp-Based Protocols with Thomas' Write rule.
28. Explain Validation-based Protocol for concurrency control.
    Explain Optimistic concurrency control Protocol.
29. What is granularity? What are the different types of granularity?
30. Explain Multi-version Timestamp Ordering Protocol.
31. Explain Multi-version Two-Phase Locking Protocol.