

Reg. No. :

**Question Paper Code : P 1181**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2009.

Seventh Semester

Computer Science and Engineering

CS 1007 — ADVANCED OPERATING SYSTEMS

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is the purpose of distributed operating system?
2. Write down the requirements of mutual exclusion algorithm.
3. Define the happened before relation.
4. Write down the two favourable conditions for deadlock detection.
5. What are the three well known agreement problems in distributed systems?
6. Give the writing policies and their advantages.
7. Define reference monitor.
8. What is authentication server?
9. State the two features of smart scheduler.
10. What are the requirements of a database operating system?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Write about the important issues in the design of a distributed operating system. (10)
- (ii) Write about the inherent limitations of a distributed system. (6)

Or

- (b) (i) Briefly explain the Huang's termination detection algorithm. (8)
- (ii) Explain the Singhal's token-based heuristic algorithm. (8)
12. (a) Discuss the various issues in the design and implementation of distributed file systems. (16)

Or

- (b) Explain any two non-token-based mutual exclusion algorithms. (16)
13. (a) (i) Describe the migration and full-replication algorithms to implement distributed shared memory systems. (8)
- (ii) Describe the type-specific coherence mechanisms in Munin system. (8)

Or

- (b) (i) Describe the load distributing algorithms and discuss their performance. (8)
- (ii) Explain the operation-based and state-based approaches to implement backward-error recovery. (8)
14. (a) (i) Describe the access model of protection with an example. (6)
- (ii) Explain the Lattice Model of Information Flow with examples. (10)

Or

- (b) (i) Describe the Data Encryption Standard technique. (8)
- (ii) Discuss the private key and public key protocols in one-way communication. (8)

15. (a) (i) Write about the different types of interconnection networks. (6)
- (ii) Describe the various multiprocessor scheduling strategies that address the issues of preemption inside critical sections, cache corruption and context switching overheads. (10)

Or

- (b) (i) Address the anomalous situations with examples when a set of transactions are concurrently running. (6)
- (ii) Explain the Two —Phase Locking (2PL) scheme. (10)

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