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Question Paper Code : 75563

5 Year M.Sc. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Information Technology

XCS 591 — DISTRIBUTED OPERATING SYSTEM

(Common to 5 Year M.Sc. Computer Technology)

(Regulation 2003)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. How distributed OS differs from network operating system?
2. What are the main issues in handling mult Datagram messages in IPC?
3. What is meant by marshalling?
4. What are the factors influencing block size selection in the design of a DSM system?
5. Mention the importance of clock synchronization in a distributed system.
6. Why is the deadlock avoidance strategy never used in distributed systems for handling deadlocks?
7. Mention the main differences between the load-balancing and load-sharing approaches for process scheduling in distributed systems.
8. What are advantages of process migration in a distributed system?
9. What is meant by an atomic transaction?
10. Differentiate between the terms "location transparency" and "location independency".

PART B — (5 × 16 = 80 marks)

11. (a) (i) Briefly explain the distributed computing system models. (8)
- (ii) Explain about failure handling in distributed systems. (8)

Or

- (b) (i) Why is scalability an important feature in the design of distributed system? Discuss about the issues in designing a scalable distributed system. (2+6)
- (ii) Describe the methods for process addressing in a message passing system. (8)
12. (a) (i) With a neat diagram, explain the implementation of RPC mechanism in a client-server model. (6)
- (ii) Explain the concept of DSM and its advantages. (10)

Or

- (b) (i) Explain the server management issues in RPC-based applications. (8)
- (ii) Briefly explain the four types of replication and migration strategies used in the design of a DSM system. (8)
13. (a) (i) Discuss the distributed clock synchronization algorithms. (10)
- (ii) Briefly explain how events are ordered in a distributed system. (6)

Or

- (b) (i) Explain WFG-based distributed algorithm for deadlock detection. (8)
- (ii) Compare Bully and Ring election algorithms. (8)
14. (a) Explain in detail the process migration mechanisms for homogeneous and heterogeneous distributed systems. (16)

Or

- (b) Discuss the issues in designing load-balancing and load-sharing algorithms for a distributed system.

15. (a) (i) Explain the main issues to be addressed by a file-caching scheme of distributed file system. (10)
- (ii) Discuss about the desirable features of a good naming system. (6)

Or

- (b) Explain the concurrency control mechanisms used by a transaction in distributed file systems. (16)
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