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**Question Paper Code : 15395**

5 Year M.Sc. DEGREE EXAMINATION, APRIL/MAY 2015.

Nineth Semester

Information Technology

**XCS 591 — DISTRIBUTED OPERATING SYSTEMS**

(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. Define the term transparency. Why is it essential in a computing environment?
2. If there is no buffering (null buffer), where does the message get stored?
3. State the purpose of marshalling and demarshalling process in RPC
4. Differentiate between Release and Entry Consistency models.
5. Write down the significance of clock synchronization.
6. Define deadlock? Give an example.
7. What is process migration?
8. State the reasons for coordinator failure in a distributed environment.
9. What are the advantages of replication? Give an example situation in a distributed environment that mandates file replication.
10. How does optimistic concurrency control differ from pessimistic concurrency control?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the components of Distributed Computing Environment? Explain them. (8)  
(ii) Write a short note on process addressing. (8)

Or

- (b) What is Fault tolerance? Give an example for fault tolerant communication between a client and a server and explain it.
12. (a) (i) Write about consistency models. (8)  
(ii) Describe the typical model for remote procedure call and explain the implementation mechanism of RPC. (8)

Or

- (b) (i) Discuss Distributed shared memory implementation issues. (8)  
(ii) What are the choices for parameter passing semantics? Explain them. (8)
13. (a) (i) Explain the passive Time server centralized algorithm. (8)  
(ii) With illustration brief the implementation of logical clocks by using counters. (8)

Or

- (b) (i) Discuss the necessary and sufficient conditions for deadlock. (8)  
(ii) Compare bully and ring election algorithms. (8)
14. (a) Discuss task assignment and explain the taxonomy of load balancing algorithms.

Or

- (b) Discuss the process migration in heterogeneous systems.
15. (a) (i) Explain the desirable features of a good distributed file system. (8)  
(ii) Highlight the need for the following with respect to a Distributed file system: Cache Consistency, Replication. (8)

Or

- (b) (i) Discuss the file caching scheme in distributed file system. (8)  
(ii) Why do some Distributed systems use two level Naming? (8)