

MCA Sem-IV - (CBSGs) - Distributed computing & cloud computing - Nov-15

QP Code : 25290

3 HOURS

Total Marks: 80

N.B. 1. Question No. 1 is compulsory.

2. Answer any FOUR from the remaining SEVEN questions.

3. Figures to the right indicate full marks.

- 1 a. Explain the following terms briefly: 10
- i. Mutual Exclusion
 - ii. Immutable Files
 - iii. Happened Before Relation
 - iv. Memory Consistency
 - v. Hypervisor
- b. Why is process migration important in a distributed system? What are the desirable features of good process migration mechanism? Explain the mechanism of migration with a diagram. 5/10
- 2 a. Explain with diagram how logical clocks are implemented with counters and physical clocks. 8
- b. Give a mechanism for consistent ordering of messaging in following case:- 7
- a. one-to-many communication
 - b. many-to-one communications
 - c. many-to-many communication
- 3 a. Explain client-server binding with special focus on server location, simultaneous bindings and exception handling for RPC. 8
- b. What is critical section? How will you implement a mutual exclusion algorithm? Describe Ricart and Agrawala's algorithm for mutual exclusion. 7
4. a. What is clock synchronization? Explain with a diagram, how logical clocks are implemented with counters and physical clocks. 8

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5. a. Explain preemptive process migration. What are different address space transfer mechanisms used in process transfer? 7
5. a. Explain with suitable examples, a process using multiple threads- 8
- In a Dispatcher- Worker model
 - In a pipelined Process model
 - In a Team model
- b. What are the main differences between the Load balancing and load sharing approaches for process scheduling in distributed system. 7
6. a. What is cloud computing? Explain in brief cloud delivery models and its deployment models. 8
- b. Explain in brief grid computing. How does it differ from cloud computing? 7
7. Write a short note on any Three of the following :- 15
- Light weight RPC
 - Munin Distributed System
 - Virtualization
 - Service Oriented Architecture (SOA)
 - Identity Access Management (IAM)

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