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2. Many of the algorithms for mutual exclusion in a distributed environment, including Lamport's algorithm, Ricart and Agrawala's algorithm, and even Suzuki and Kasimi's algorithm, share some common disadvantages. What are those disadvantages, and how are they overcome by Raymond's tree algorithm? (10 points)

3. Briefly define false deadlock, and then explain why reporting false deadlock is a problem. (10 points)

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4. Summarize the Chandy, Misra, and Haas Edge-Chasing algorithm for deadlock detection in a distributed environment. (20 points)

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5. One method for deadlock prevention tries to avoid the “hold and wait” condition by forcing a process that wants a new resource to release all current resources and then request the new one plus all the old ones at the same time. What are the problems with this method? (8 points)

6. One implementation method for atomic transactions uses a writeahead log with immediate update.

a. In this method, what is written in the log, and when is the log written with respect to when the data is updated? (10 points)

b. In this method, what happens if the transaction commits? What happens if the transaction aborts? (6 points)

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7. One method for concurrency control is two-phase locking.

a. Briefly explain the two phases of this method. (10 points)

b. Explain why this method increases concurrency over static locking. (6 points)