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CS 6/73201

Final Exam

Advanced OS

Wednesday 12 May 1999

1. In what ways are remote procedure calls (RPCs) and CORBA (i) similar, and (ii) different? (10 points)

2. Briefly explain the Berkeley algorithm for clock synchronization. If you do not remember this algorithm, explain Christian's algorithm for partial credit. (8 points)

3. With regard to mutual exclusion algorithms in a distributed environment, what are the main tradeoffs between centralized algorithms, time-based algorithms such as Ricart and Agrawala's algorithm, and token-passing algorithms such as Le Lann's token-ring algorithm? (12 points)

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4.	In the Byzantine Generals problem, there is one general and some number of lieutenants.
	Under the different conditions that may arise, what order should the various lieutenants, loyal
	or otherwise, agree on when they try to reach agreement? (6 points)

5. Consider the second algorithm for centralized deadlock detection discussed in class. In one version of this algorithm, a central coordinator maintains a WFG for the system, and the other nodes send information to the coordinator at periodic intervals. What are the major disadvantages of this algorithm? (6 points)

6. With regard to atomic transactions, briefly explain (i) static locking, and (ii) the advantages and disadvantages of that approach. (15 points)

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7.	In load distribution, e	explain the primary	disadvantages of	f both (i) sender-	-initiated and (ii)
	receiver-initiated alg	orithms. (8 points)	1		

8. In SUN's NFS, what does "mounting a remote file system" mean? (8 points)

9. Briefly name and describe one of the three algorithms discussed in class for dynamic scheduling in a real-time system. (7 points)

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10. At the beginning of the semester, a "true" distributed operating system was defined as having a single operating system, or at least the feel of one. Given the topics discussed in this class, how close are we to developing a true distributed OS? Explain your answer, providing examples where appropriate. (20 points)