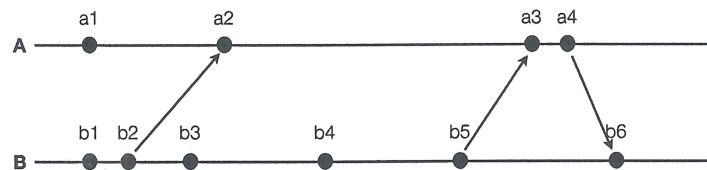# Distributed Systems
academic year 2007-08

Rules

ž This is a closed books exam.

ž The operation of any electronic device is prohibited (e.g, no calculator, phone or PDA).

ž Answer the questions being *precise, complete,* and *formal.*

ž Write as *clearly* as possible, both in terms of handwriting and wording.

Questions

1. Illustrate the five phases executed when performing a client request in an active replication architecture.

2. What are the replication requirements for a Distributed File System? What are the efficiency requirements for a Distributed File System? How does NFS satisfy or unsatisfy them?

3. What are the advantages and disadvantages of the Domain Name System? How does it compare to the Global Name Service?

4. Consider Lamport's logical clocks and the situation depicted in the following figure

enumerate all instances of events which stand in the happened-before relation. Is the relation reflexive? Is it transitive?

5. Illustrate the ring algorithm for leader election. Does it has have the properties of safety and liveliness? Discuss its bandwidth and turnaround.