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VII SEMESTER B.TECH.(COMPUTER SCIENCE AND ENGINEERING) DEGREE
END-SEMESTER EXAMINATION-NOVEMBER/DECEMBER 2014
SUBJECT: DISTRIBUTED COMPUTING SYSTEMS (CSE 401)
DATE: 28-11-2014

TIME: 3 HOURS   MAX.MARKS: 50

Instructions to Candidates
- **Note:** Answer any **FIVE** full questions.

1A. Explain CORBA'S Common Data Representation with an example.
1B. Explain the working of the Remote reference module in the implementation of RMI.
1C. Explain Location Transparency and Migration Transparency.

(4+4+2)

2A. List and explain the different roles for observers in the architecture for distributed event notification.
2B. With diagrams, explain two different types of virtualization.
2C. Explain the role of the Virtual file system in the Sun Network File System. (4+4+2)

3A. With a diagram explain the Globus Security Architecture.
3B. What is navigation? With a diagram, explain Iterative navigation.
3C. Describe the problem of unbound names in multicast navigation. What is implied by the installation of a server for responding to lookups of unbound names? (5+3+2)

4A. With an example, explain an algorithm for selecting a node as the coordinator in a wireless ad hoc network.
4B. With an example, explain Lamport's Logical clocks.

4C. Assume machine A is trying to get the current time from time server B using Network Time Protocol. If T1=100s, T2=90s, T3=102s and T4=132s, estimate A's offset with B. Should A's clock be set forward or backward? (4+4+2)

5A. With diagrams, explain Read Your Writes Client-Centric Consistency models. Also give an example.

5B. To implement totally-ordered multicasting by means of a sequencer, one approach is to first forward an operation to the sequencer, which then assigns it a unique number and subsequently multicasts the operation. Mention two alternative approaches, and compare the three solutions.

5C. A file is replicated on 10 servers. List all the combinations of read quorum and write quorum that are permitted by the voting algorithm. (4+4+2)

6A. Given 4 processes 1, 2, 3 and 4. Assume process 4 is faulty. Show the working of the Byzantine agreement problem.

6B. With state diagrams, explain the Three-Phase Commit protocol.

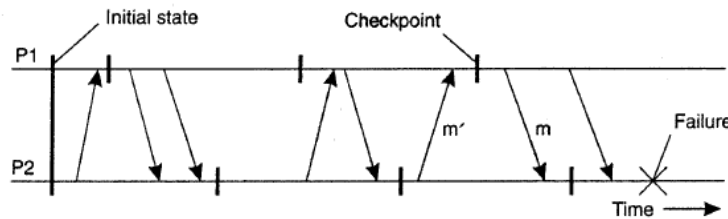6C. Copy Fig Q.6.C. to your answer paper, plot the recovery line and

Fig. Q.6.C.

explain your answer. (4+4+2)

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