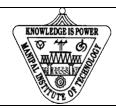# MANIPAL INSTITUTE OF TECHNOLOGY
(Constituent Institute of Manipal University)
MANIPAL-576104

VII SEMESTER B.E. (COMPUTER SCIENCE AND ENGINEERING) DEGREE
MAKE-UP EXAMINATION – JANUARY -2014
SUBJECT: DISTRIBUTED COMPUTING SYSTEM (CSE 401)
DATE: 08-01-2014

TIME: 3 HOURS   MAX.MARKS: 50

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

1.A. Explain the types of failure occur when a process or communication channel fails to perform its actions?

1.B. Discuss briefly on the following

(i) RPC Exchange Protocols

(ii) Format of Remote Object Reference

1.C. Discuss and explain the File Service Architecture and its modules in detail with a neat diagram .

(3+(2+2)+3)

2.A. Discuss in detail the implementation of RMI with a neat diagram.

2.B. Explain the general organization of a three- tiered server cluster with a neat diagram.

2.C. With a neat sketch discuss the architecture of distributed event notification.

(4+3+3)

3.A. Explain happen-before relation and the steps involved in implementing Lamport 's logical clock in detail with a neat diagram.

3.B. With a neat diagram explain token based algorithm for mutual exclusion.

3.C. What is election algorithm? Explain briefly about the bully algorithm with a neat diagram.

(3+3+4)

4.A. Define the following with a neat timing diagram

    (i)   Causal consistency

    (ii)   Monotonic reads

    (iii)   Writes follow reads

4.B. Explain in detail about content distribution in replica management.

4.C. What is quorum based protocols? Explain briefly with a neat diagram.

((1+1+1)+4+3)

5.A. What happens if a client sends a request to a server and crashes before the server replies? What are the techniques adopted to handle those replies?

5.B. What is feedback implosion and feedback suppression? Explain in detail with a neat diagram.

5.C. What is the drawback of one-phase commit protocol? How it is resolved in two-phase commit protocol ? Explain with necessary diagrams.

(3+4+3)

6.A. How name resolution and navigation related? What are the different types of navigation techniques used? Explain with necessary diagrams.

6.B. Explain the following:

    (i) Types of security threats

    (ii) Authentication Using Public Key Cryptography

6.C. What is a cryptographic technique? How the message is encrypted and decrypted? Discuss the role of intruders and eavesdroppers in the communication with a neat diagram.

(4+(1+2)+3)

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