IT

Name : .....

Roll No. : .....

Invigilator's Signature : .....

**CS/B.Tech(IT)/SEM-7/IT-703-D/2009-10**

**2009**

# DISTRIBUTED COMPUTING

Time Allotted : 3 Hours | Full Marks : 70

*The figures in the margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

## GROUP – A

## ( Multiple Choice Type Questions )

1. Choose the correct alternatives of the following : $10 \times 1 = 10$

i) Two-message IPC protocol is common with

a) Synchronization b) Failure Handling

c) File Sharing d) all of these.

ii) Cross-domain is associated with

a) RPC b) LRPC

c) WRPC d) none of these.

iii) Data-caching Model is used to access

a) Remote File b) Remote Process

c) Local File d) none of these.

iv) The communication protocol for RPC is
   a) Request Protocol
   b) Request / Reply Protocol
   c) Request / Reply / ACK Reply Protocol
   d) all of these.

v) Light Weight RPC is made for
   a) Cross-domain Communication
   b) Cross-machine Communication
   c) both (a) & (b) Communications
   d) none of these.

vi) What is used to detect deadlock in distributed system ?
   a) Chandy-Misra-Hass algorithm
   b) Active Time Server algorithm
   c) Ring algorithm
   d) Lamport algorithm.

vii) Granularity refers in a DSM
   a) in terms of page size
   b) in terms of block size
   c) in terms of virtual address space
   d) in terms of logical address space.

viii) Two events are said to be ..... if they happened before relation does not relate them.
   a) transitive  b) concurrent
   c) causal  d) none of these.

ix) An attack which does not cause any harm to the system being threatened is known as a ..... attack.
   a) active  b) passive
   c) denial-of-service  d) replay.





x) Which of the following is false ?
   a) Logical time needs a perfect clock
   b) Naming transparency is a major design issue of distributed system
   c) Phantom Deadlock may occur in centralized approach for deadlock detection
   d) Workstation server model is designed for diskless workstation.

## GROUP – B

### ( Short Answer Type Questions )

Answer any *three* of the following. 3 × 5 = 15

2. What is transparency ? Discuss types of Transparency. 1 + 4
3. Differentiate between Asymmetric key cryptography and Symmetric key cryptography.
4. What is RPC ? What are stateless & stateful servers ? 2 + 3
5. Mention the issues in designing Load Sharing algorithms.
6. a) What are threads ? 1
   b) How are threads created and terminated ? 2 + 2

## GROUP – C

### ( Long Answer Type Questions )

Answer any *three* of the following. 3 × 15 = 45

7. a) Discuss Active time-server centralized algorithm in detail. 5
   b) State three approaches of Mutual exclusion. 5
   c) Differentiate between Casual ordering of event and Consistent ordering of event. 5

8. a) Discuss different types of Load Balancing Algorithms. 6

   b) Discuss different Data transfer models in Distributed File System. 4

   c) Differentiate between Replication and Caching. 2

   d) State desirable features of good Distributed File System. 3

9. a) What is the relation between Granularity & Thrashing ? 3

   b) Why is DSM advantageous ? 3

   c) In case of centralized clock synchronization algorithms, what is the difference between active time server & passive time server algorithms ? 4

   d) What is drifting of clocks ? 3

   e) What is clock skew ? 2

10. a) Describe blocking & non-blocking types of IPC. 3

    b) What are their relative advantages & disadvantages ? 3

    c) What are multi-datagram messages ? 2

    d) What are the advantages of light weight RPCs ? 2

    e) Describe some techniques used in LRPC system that make it more efficient than the conventional RPC system. 5

11. Write short notes on any *three* of the following : 3 × 5

    a) Key Distribution in Symmetric Cryptosystem

    b) Active attacks on Cryptography

    c) Group communication

    d) Light Weight RPC

    e) Digital Signature.