Total No. of Questions : 5] *[Total No. of Printed Pages :3*

Roll No .....

IT - 601

B.E. VI Semester

Examination, June 2015

Distributed Systems

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each questions are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) What is fundamental model of distributed system?

   b) Write the advantages of distributed systems over independent PCs.

   c) Explain the software concept of distributed operating system.

   d) Explain the following algorithm of clock synchronization:

      i) Berkeley algorithm

      ii) Averaging algorithm

      OR

      Suppose that there are four active processes P1, P2, P3 and P4 at the moment. Later processes P1 and P4 fails. Explain the various steps which will taken by Bully's algorithm when this happens.

Unit - II

2. a) Define safe and unsafe states of system in deadlock avoidance scheme.

   b) What are phantom deadlock?

   c) Define edge chasing algorithm.

   d) How Byzantine Agreement Protocol helps to increase fault tolerance?

   OR

   Explain following distributed algorithms for deadlock detection.

   i) WFG based distributed algorithm.

   ii) Probe based distributed algorithm.

Unit - III

3. a) Explain Andrew file system in detail.

   b) What is meant by address space?

   c) Explain the features of a distributed file system?

   d) What do you mean by File Caching? What are the main approaches to verify the validity of cached data in Distributed File Systems?

   OR

   Explain the concept of RMI with a suitable example.

Unit - IV

4. a) Explain some limitations of flat transactions?

   b) What do you mean by group communication?

   c) Explain transaction recovery.

   d) Explain why serial equivalence requires that once a transaction has released a lock on an object, it is not allowed to obtain any more locks.

   OR

   Explain the following.

   i) Fault tolerant services.

   ii) Highly available services.

Unit - V

5. a) Write a short note on destination based routing.

   b) Define assignment problem in parallel.

   c) Discuss the need of the coordinator. Also give any one election algorithm for coordinator selection.

   d) Explain how CORBA objects can be created in the absence of constructors?

   OR

   Explain Wave and Traversal algorithm.

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