Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

IT-601 (GS)

B.E. VI Semester

Examination, December 2017

Grading System (GS)

Distributed System

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions out of eight.
ii) All questions carry equal marks.

1. a) What are the Token and Non-token based algorithm? Explain Lamport's algorithm with example.
   b) Why is scalability an important feature in the design of distributed system? Discuss some of the guiding principles for designing a scalable distributed system.

2. a) What are vector clocks? Explain with the help of implementation rule of vector clocks, how they are implemented. What are the advantages of vector clock over Lamport clock?
   b) Explain the consistency models used in distributed shared memory.

3. a) What do you mean by agreement protocol? What are the differences between Byzantine agreement problem the consensus problem and the interactive consistency problem?
   b) What are the differences in resources and communication deadlock? Discuss the salient feature of a path pushing algorithm and explain how wait for dependencies are propagated in the form of paths.

4. a) What do you mean by distributed objects? Explain the concept of remote method invocation with a suitable example.
   b) Discuss in detail the file caching schemes in distributed file systems.

5. a) What is the communication models proposed for the communication between the distributed objects.
   b) Compare and contrast the methods of concurrency control for transactions. Explain the methods for concurrency control in distributed transactions.

6. a) Explain why the interfaces to remote objects in general and CORBA objects in particular do not provide constructors. Explain how CORBA objects can be created in the absence of constructors.
   b) What do you mean by routing? Discuss the correctness, complexity, efficiency and Robustness criteria of a good routing algorithm.

7. a) Explain assignment problem in parallel with example.
   b) What are traversal algorithm? Explain assignment problem in parallel.

8. Write short notes on the following:
   a) Andrew file system
   b) Flat and nested transaction
   c) Atomic commit protocols
   d) Election algorithm

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