(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0192 Roll No.

B.Tech.

(SEM. VIII) THEORY EXAMINATION 2010-11

DISTRIBUTED SYSTEMS

TCS801

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0147 Roll No.

B.Tech.

(SEM. VIII) THEORY EXAMINATION 2010-11

DISTRIBUTED SYSTEMS

Time : 3 Hours *Total Marks : 100*

Note :—Attempt ALL questions.

1. Attempt any two parts :— **(10×2=20)**

   (a) What are the inherent limitations of distributed system ? What could be the impact of absence of global clock and shared memory ?

   (b) Describe Causal ordering of messages and explain with a suitable example how it can be implemented by a system of vector clocks.

(c) Define the problem of distributed mutual exclusion. What are the performance matrices for distributed mutual exclusion algorithms ? Explain with a suitable example.

2. Attempt any two parts :— (10×2=20)

(a) What are the deadlock handling strategies in distributed system ? What are control organizations for distributed deadlook detection ? Discuss a algorithm which can remove the possibility of Phantom deadlook detection.

(b) What do you mean by agreement protocol ? What are differences between Byzantine Agreement Problem, the consensus problem and the interactive consistency problem ? Discuss impossibility results for Byzantine Agreement.

(c) What are the differences in resources and communication deadlock ? Discuss salient feature of a path pushing algorithm and explain how wait for dependencies are propagated in the form of paths.

3. Attempt any two parts :— (10×2=20)

(a) Explain the RPC mechanism for communication among distributed objects and also discuss different design issues in RPC.

(b) (i) Give the architecture of Sun Network file system.

(ii) Discuss the mechanisms for building distributed file system.

(c) Discuss the Kerberos with its steps towards achieving the authentication.

4. Attempt any two parts :— (10×2=20)

(a) Give the classification of distributed concurrency control techniques.

(b) "Three-phase is a non-blocking protocol." Justify the statement with its working and state transition diagram.

(c) Explain following with suitable example :

(i) Flat and Nested transaction

(ii) 2PL and strict 2PL

5. Attempt any two parts :— (10×2=20)

(a) Discuss the All Pair Shortest Path (APSP) problem with its application. Discuss the complexity of this algorithm.

(b) What are wave algorithm ? Discuss the usage and application of wave algorithm. What are the requirements of wave algorithm ?

(c) Write short notes on :—

(i) CORBA and its services

(ii) Election based algorithm.