Roll.No.

B.E/ B.Tech.(Full Time) END SEMESTER EXAMINATIONS, APR/MAY 2012
SEMESTER V
INFORMATION TECHNOLOGY DEPARTMENT
IT9304/ Distributed Systems
(REGULATION 2008)

Time: 3 Hours   Max. Marks: 100

Answer All Questions

Part – A   10x2 = 20 Marks

1.   Illustrate and briefly explain the client –server architecture of one major Internet applications.
2.   What are the advantages of dynamic remote method invocation?
3.   Why clock synchronization is necessary in distributed systems?
4.   Discuss about flat transaction and its limitations.
5.   What is the difference between read replication and full replication algorithms?
6.   Weak consistency models impose an extra burden for programmers. To what extent is this statement actually true?
7.   Why agreement protocols are used in distributed systems?
8.   What are all the impossibilities in Fault Tolerance?
9.   Which model is simpler DCOM or CORBA? Give reasons for your answer.
10. What is JINI Technology?

Part –B   16x 5 = 80 Marks

11. A distributed software system follows the client-server model. The microkernel on which it is based supports multi-threaded processes. A remote procedure call (RPC) package is used for client-server interactions. The RPC system runs above an unreliable, datagram-based communications service.

(a) Explain how timers may be used in the RPC protocol to achieve client-server Synchronization.   [6]

(b) Discuss how the RPC system may support the location of remote procedures.   [4]

(c) Explain different classes of failures that can occur in RPC systems and the possible solutions that can be used for handling them.   [6]

12. a   i) By means of a diagram illustrate the use of logical clocks and vector clocks in ordering of message delivery in distributed systems.   [8]
ii) Compare the mutual exclusion algorithms, describing its features and limitations.   [8]

OR

12.b
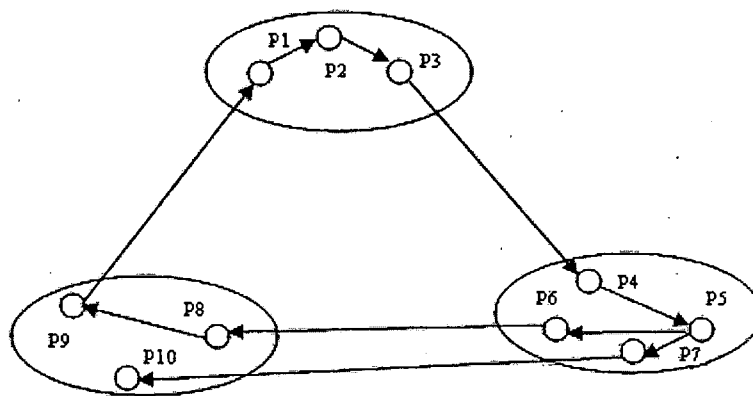
    i) Detect the deadlock that has occurred in the above system using Chandy misra haas algorithm. [8]

    ii) Describe the deadlock prevention methods and its limitations. [8]

13.a   i) Explain Client centric consistency models in detail. [8]

        ii) How sequential consistency is achieved in IVY. [8]

OR

13.b   What transparencies are there in distributed file system of this which are achieved in NFS and which are not achieved in NFS explain? [16]

14.a   Explain the importance of Fault Tolerance and Agreement Protocols in detail [16]

OR

14.b   i) What is Atomic multicast? How Atomic Multicast is achieved in a distributed system? Explain. [8]

        ii) Explain how two phase commit protocols are used in distributed transactions. [8]

15.a   Distributed CORBA objects – modeled as business objects – are an excellent fit for 3-tier client / server architectures. Explain the context. [16]

OR

15.b   i) How interface in COM are implemented? [8]

        ii) Discuss the naming service provided by the coordination based system-JINI [8]