r.J.P.Sharry

Roll No:

National Institute of Technology, Hamirpur (HP) (B.Tech.- Computer Science and Engineering)

Branch: Computer Science and Engineering Course Name: Distributed System Time: 03 hrs Semester: 6th Course Code: CS-321 Max Marks: 50 10

- i. What do Architectural Models of a distributed system depict? Give various architectural 10 models with brief description.
 - ii. Compare client-server and peer-to-peer models in terms of performance, robustness, scalability etc.
- 2 i. What are logical clocks? Why do we need logical clocks when we have software clocks? 8
 - ii. Explain vector clocks. How vector clocks are more efficient/useful than logical clocks.Give its advantage over logical clocks.
- What is distributed debugging? Does it involve stable or non-stable predicate? Justify. Create
 a lattice for following scenario where two processes are executing in a system and are also sending messages to each other:



- 4 What is mutual exclusion problem in a distributed system? Give Ricart Agarawala algorithm 8 for solving the problem of mutual exclusion. Compare its performance with ring based algorithm.
- 5 What is reliable multicast? Explain basic requirements of a reliable multicast. Also give the 8 algorithm to implement reliable multicast.
- 6 What is ordered multicast? Give both centralized and distributed algorithmic approaches for 8 achieving total ordering in a distributed system.
 Compare both approaches in terms of bandwidth, robustness etc.