

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -3 EXAMINATION- May 2018

B.Tech CSE VIII//M.Tech CSE II Semester

COURSE CODE: 10M11CI212

MAX. MARKS: 35

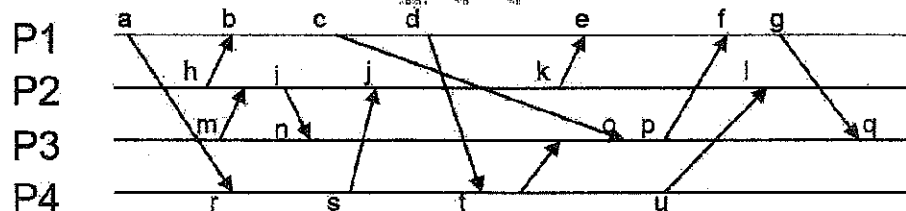
COURSE NAME: Advanced Operating Systems

COURSE CREDITS: 3

MAX. TIME: 2 Hrs.

Note: All questions are compulsory. Carrying of mobile phone during examinations will be treated as case of unfair means.

- Q1. [CO4] Explain Suzuki-Kasami Algorithm for providing mutual exclusion in distributed systems with the help of an example. [5]
- Q2. [CO3] At 10:27:540 (hr, min, 1/100 sec.), server B requests time from the time-server A. At 10:27:610, server B receives a reply from timeserver A with the timestamp of 10:27:375. Find out the drift of B's clock with respect to the time-server A's clock (assume there is no processing time at the time-server for time service). [4]
- Q3. [CO3] Consider four processes (P1, P2, P3, P4) with events a, b, c... as shown in the following figure. Assume that initial logical clock values are all initialized to 0. Evaluate the vector clock timestamps for each labeled event. [5]



- Q4. [CO6] i) Discuss the various security risks to distributed systems. [3]
 ii) In a RSA cryptosystem, Alice uses two prime numbers $p = 11$ and $q = 13$ to generate her public and private keys. Find her private key if the public key is 7. Also encrypt $M=8$ using her private key. [3]
- Q5. [CO2] Discuss the following: [2*3 = 6]
 i) Any four types of transparencies in distributed systems
 ii) Network operating system vs distributed operating system
 iii) Goals of distributed systems.
- Q6. [CO4] What are the issues with sender initiated and receiver initiated algorithms for distributed scheduling? How these issues can be resolved? [4]
- Q7. [CO5] i) Differentiate between read replication and full replication algorithms for distributed shared memory. [3]
 ii) Identify the issues in implementing distributed file systems. [2]