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Question Paper Code: 22031

M.E. DEGREE EXAMINATION, MAY 2014.

Second Semester

Computer Science and Engineering

01PCS202 - DISTRIBUTED OPERATING SYSTEM PRINCIPLES

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is critical section? Give an example.
2. Define a concurrent process.
3. Define Lamport's logical clock.
4. Write the difference between synchronous and asynchronous computation.
5. Define demand replication.
6. What are the disadvantages of load balancing approach?
7. What are the major problems associated with the forward-error recovery approach?
8. Define two-phase locking.
9. What is process synchronization? Give an example.
10. Differentiate user level threads with kernel level threads.

PART - B (5 x 14 = 70 Marks)

11. (a) Describe the various synchronization mechanisms. (14)

Or

(b) Discuss about any three models of deadlock. (14)

12. (a) Explain in detail about Suzuki-Kasami's broadcast algorithm. Write the difference between token based and non-token based algorithms. (14)

Or

(b) What is agreement protocol? Write in detail about the various classification and solutions of agreement problem. (14)

13. (a) Discuss any two implementation algorithms for distributed shared memory. (14)

Or

(b) What are the types of process scheduling? Explain in detail about the load sharing approach. (14)

14. (a) Describe in detail about the recovery in concurrent system. (14)

Or

(b) Describe the voting protocols and dynamic voting protocols in detail. (14)

15. (a) Discuss about processor scheduling in detail. (14)

Or

(b) Explain neatly about any two concurrency control algorithms in distributed database system. (14)

PART - C (1 x 10 = 10 Marks)

16. (a) The SFS uses main memory for the file cache. What are the issues to be considered in cache management if the virtual memory page can hold a multiple number of file blocks? (10)

Or

(b) Sender-initiated algorithms cause system instability at high system loads. Predict, analytically, at what system load the instability will occur. Assume Probelimit = 5, average service requirement of a task = 1 second and overhead incurred by a processor to poll or to replay to a poll = 3 milliseconds. (10)