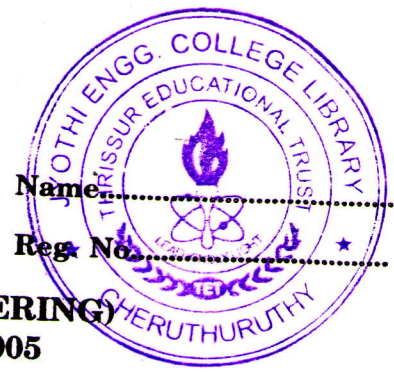


C 6245

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**SIXTH SEMESTER B.TECH. (ENGINEERING)
DEGREE EXAMINATION, JUNE 2005**

IT/CS 2K 606 B—DISTRIBUTED SYSTEMS

(New Scheme)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) Enumerate the advantages and disadvantages of distributed system.
(b) Discuss the primary goals of distributed computing environments (DCF).
(c) Compare processes with threads.
(d) Why is computer clock synchronization necessary ? Discuss the design requirements for a system to synchronize the clocks in distributed system.
(e) Discuss in detail the *two* major components of Cell Directory service.
(f) What is meant by an idempotent operation ? Illustrate with examples.
(g) Why is thrashing an important issue in DSM systems, and what methods are available for dealing with it ?
(h) Explain explicit file replication and compare it with lazy file replication.
- (8 × 5 = 40 marks)
- II. (a) Summarize the key design issues to be dealt in designing a distributed operating system.
- Or*
- (b) Discuss in detail about the DCF components, DCF threads and their scheduling process.
- III. (a) Discuss the three organizations of threads in a process and elaborate on the design issues for threads packages.
- Or*
- (b) Write short notes on the following primitives available in a client-server model :—
(i) Blocking *versus* Non-Blocking primitive.
(ii) Buffered *versus* Unbuffered primitive.
(iii) Reliable *versus* Unreliable primitive.
- IV. (a) Compare the centralized mutual exclusion algorithm with distributed mutual exclusion algorithm. For what applications does distributed mutual exclusion algorithm perform better ? Elaborate.
- Or*
- (b) What are the issues in a leader election ? Present an algorithm that solves many of the issues in leader election.

Turn over

- V. (a) (i) Mention the *four* ways of dealing with shared files in a distributed system. (8 marks)
- (ii) Elaborate on the following distributed file system implementation issues :—
- 1 System structure.
 - 2 Caching.

(7 marks)

Or

- (b) (i) What are the advantages of distributed shared memory ? Make a strict comparison of Page based distributed shared memory *versus* Object based distributed shared memory. (10 marks)
- (ii) What is release consistency ? Explain how release consistency is implemented. (5 marks)

[4 × 15 = 60 marks]