

ADCA / MCA (III Year)
Term-End Examination
June, 2007

CS-13 (S) : OPERATING SYSTEMS

Time : 3 hours

Maximum Marks : 75

Note : Question number 1 is **compulsory**. Answer any **three** questions from the rest.

1. (a) Write and explain Ricart and Agrawala's algorithm for the ordering of events in distributed systems. Justify that this is a more efficient version of Lamport's algorithm. 8
- (b) What is a Semaphore ? Explain the queuing implementation of semaphores. 8
- (c) Write the deadlock avoidance algorithm. 6
- (d) Write and explain any election of a successor algorithm in distributed system. 8
2. (a) Explain the memory management scheme that removes the requirement of contiguous allocation of physical memory. 8

- (b) Discuss the organization of File Allocation Table (FAT) with a suitable example. What kind of fragmentation occurs in FAT ? 7
3. (a) List and explain the two basic strategies of non-contiguous allocation of disk space 8
- (b) Write and explain the Page Fault Frequency algorithm for page replacement. 7
4. (a) Explain the access-matrix model of protection for computer systems. 8
- (b) Write and explain the solution for the producers/consumers (bounded buffer) problem using monitors. 7
5. (a) Explain the basic model for a cryptographic system. Draw an appropriate figure. 7
- (b) Explain the implementation of RPC mechanism in a distributed operating system. 8