

II B.Tech II Semester Examinations, April/May 2012
OPERATING SYSTEMS
Information Technology

Time: 3 hours**Max Marks: 80**

Answer any FIVE Questions
All Questions carry equal marks

1. Write brief notes on the following:
 - (a) Spooling and Device reservation
 - (b) Buffering
 - (c) I/O Protection
 - (d) Caching. [4+4+4+4]

2. (a) Explain why a capability-based system such as Hydra provides greater flexibility than the ring protection scheme in enforcing policies.
(b) Discuss the following:
 - i. Trojan horse
 - ii. Denial of service. [8+8]

3. (a) What problems of linked allocation techniques are solved by indexed allocation? Explain the method in detail. Also specify its disadvantages.
(b) What is the need for file locking? Explain about various types of locks. [10+6]

4. Suppose that a disk drive has 5000 cylinders, numbered 0 to 4999. The drive is currently serving a request at cylinder 143 and the previous request was at cylinder 125. The queue of pending requests in FIFO order is:
86, 1470, 913, 1774, 948, 1509, 1022, 1750, 130
Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms?
 - (a) FCFS
 - (b) SSTF
 - (c) SCAN
 - (d) LOOK [16]

5. (a) What is the significance of locks in synchronization?
(b) What is the hardware solution for critical section problem in uniprocessor system that can not be used in multiprocessor system?
(c) How test and set and swap instructions are useful in synchronization using hardware? [6+5+5]

6. (a) What is lazy swapper?
(b) What is pure demand paging?
(c) What is page fault?
(d) What is locality of reference? [4+4+4+4]
7. Discuss, with examples, how the problem of maintaining coherence of cached data manifests itself in the following processing environment:
(a) Single processor systems.
(b) Multiprocessor systems
(c) Distributed systems. [5+5+6]
8. (a) What is the difference between preemptive and non-preemptive scheduling?
(b) What is dispatcher?
(c) What are the scheduling criteria? [5+5+6]

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