

THIRD SEMESTER B.C.A. DEGREE EXAMINATION, NOVEMBER 2011

(C.C.S.S.)

BCA—Core Course

CA 3B 04—OPERATING SYSTEM

Time : Three Hours

Maximum Weightage : 30

Part I*Answer all questions.*

1. Which of the following is a single user operating system ?
 - (a) MS DOS.
 - (b) UNIX.
 - (c) OS/2.
 - (d) None of the above.
2. In a time sharing system, when the time slot given to a process is completed, the process goes from the RUNNING state to _____ state.
 - (a) BLOCKED.
 - (b) READY.
 - (c) SUSPENDED.
 - (d) TERMINATED.
3. Which of the following is the most suitable scheduling scheme in a real time OS ?
 - (a) Round Robin.
 - (b) FCFS.
 - (c) Pre-emptive.
 - (d) Random scheduling.
4. The _____ is the additional time waiting for the disk to rotate the desired sector to the disk head.
5. The main function of shared memory is to :
 - (a) Use primary memory efficiently.
 - (b) Do intra-process communication.
 - (c) Do inter-process communication.
 - (d) None of the above.
6. Dijkstra's banking algorithm in OS solves the problem of :
 - (a) Deadlock avoidance.
 - (b) Deadlock recovery.
 - (c) Mutual exclusion.
 - (d) Context switching.
7. The size of the virtual memory depends on the size of the :
 - (a) Data bus.
 - (b) Main memory.
 - (c) Address bus.
 - (d) None of the above.

8. In Round Robin CPU scheduling, as the time quantum is increased, the average turn-around time :
- (a) Increases. (b) Decreases.
(c) Remains constant. (d) Varies irregularly.
9. Which of the following is true ?
- (a) Overlays are used to increase the size of physical memory.
(b) Overlays are used to increase the logical address space.
(c) When overlays are used, the size of a process is not limited to the size of physical memory.
(d) Overlays are used whenever the physical address space is smaller than the logical address space.
10. Distributed systems should :
- (a) Meet prescribed time constraint. (b) Aim better resource sharing.
(c) Aim better system utilization. (d) Aim low system overhead.
11. When an interrupt occurs, an OS :
- (a) Ignores the interrupt.
(b) Always changes the state of the interrupted process after processing the interrupt.
(c) Always resumes execution of the interrupted process after processing the interrupt.
(d) May change the state of the interrupted process to "blocked" and schedule another process.
12. The disk throughput is the total number of bytes transferred, divided by the total time between the first request for service and the completion of last transfer.

(12 × ¼ = 3 weightage)

Part II

Answer all questions.

13. Differentiate between Multiprogramming and Multitasking.
14. What is meant by a critical section ?
15. What are the important duties of a scheduler ?
16. Distinguish between a process and a thread.
17. Describe in brief about Resource Allocation Graph.
18. What do you mean by Belady's Anomaly.
19. Explain the concept of compaction.
20. Mention a few important operations that can be performed on a file.
21. What is meant by seek time and rotational latency ?

(9 × 1 = 9 weightage)

Part III

Answer any five questions.

22. Distinguish between SCAN and C-SCAN disk scheduling.
23. Compare sequential access and direct access methods.
24. Explain in brief the different page replacement algorithms.
25. What is meant by a deadlock ? How it can be prevented ?
26. What is a Semaphore ? How it can be implemented ?
27. Explain the booting process in detail.
28. Explain the concept of file protection and security in detail.

(5 × 2 = 10 weight)

Part IV

Answer any two questions.

29. Explain in detail the concept of demand paging.
30. Explain different directory structures in detail.
31. Explain any *two* CPU scheduling algorithms.

(2 × 4 = 8 weight)