(6 pages)

2320/SCS8C52 **APRIL 2011**

OPERATING SYSTEM

(For those who joined in July 2008 and 2009)

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 1 = 10 marks)

Answer ALL the questions.

1. The ———— manager organizes named collections of data on storage devices and provides a interface for access data on those devices.

(a) File system

(b) I/O

(c) Memory

(d) Inter process communication.

2. A process is said to be in the ———— state if is executing on a processor.

(a) Ready (b) Waiting

(c) Blocked (d) Running.

3. In mutual exclusion concept, when a thread is accessing shared modifiable data, it is said to be in ———— section.

(a) Blocked (b) Critical

(c) Deadlock (d) Concurrent.

4. A ———— semaphore is a semaphore that is initialized to an integral value greater than zero and commonly greater than one.

(a) Counting (b) Binary

(c) Digital (d) Starvation.

5. Banker's algorithm can be used to deadlock ————.

(a) Prevention (b) Avoidance

(c) Detection (d) all of the above.

6. ———— scheduling (s) is/are non preemptive scheduling.

(a) Round Robin

(b) First-Come, First-Served

(c) Highest–Response–Ratio–Nest.

(d) All of the above.

7. ———— state(s) is/are memory placement strategy (strategies)

(a) First fit (b) Worst fit

(c) Best fit (d) All of the above.

8. Under ———— page replacement, each page in main memory has an equal likelihood of being selected for replacement.

(a) FIFO (b) LRU

(c) RAND (d) LFU.

9. The SCAN disk scheduling algorithm is sometimes called the ———— algorithm.

(a) Angular (b) Linear

(c) LOOK (d) Elevator.

10. ———— is an expansion of DASD.

(a) Direct access storage device

(b) Data access storage device

(c) Direct access storage data

(d) Direct allocation storage device.

SECTION B — (5 × 7 = 35 marks)

Answer ALL the questions.

11. (a) Write about the Structure of PCB.

Or

(b) Explain the process state transition with suspend and resume operation.

12. (a) Describe how mutual exclusion and thread synchronization are enforced using semaphores.

Or

(b) Enumerate the circular buffer example of Monitor.

13. (a) Write about the Deadlock prevention in brief.

Or

(b) What are the scheduling objectives? Explain.

14. (a) Write about the memory management and memory hierarchy.

Or

(b) Describe the NUR and Far page replacements with illustration.

15. (a) Explain the following disk scheduling strategies with example:

(i) SSTF

(ii) FSCAN and N-Step SCAN.

Or

(b) Write about any two file allocation method with illustration.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain about the Inter process communication in detail.

17. Discuss any two versions of Dekker's algorithm for implementing mutual exclusion.

18. Enumerate the following process scheduling algorithm with example:

(a) FIFO

(b) RR

(c) Multilevel Feedback queues.

19. Explain the variable-partition multiprogramming concept with example.

20. Write about the directories and metadata in file system.

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