Fourth Semester B.Tech. Degree Examination, May 2014
(2008 Scheme)
Branch : COMPUTER SCIENCE
08.406 : Operating Systems (R)

Time : 3 Hours

Max. Marks : 100

PART – A

Answer all questions. Each question carries 4 marks.

1. Are SJF-based algorithms used in CPU-scheduling and disk-scheduling (Shortest-Seek-Time-First) optimal? Why?

2. Why is the swap partition kept separate from the rest of the file system?

3. Differentiate between multi tasking and multi programming.

4. What is Belady’s anomaly?

5. Does paging eliminate fragmentation? Why?

6. What are the factors considered while choosing the page size?

7. How does the Banker’s algorithm check whether a state is safe?

8. What is meant by C-SCAN algorithm?

9. What is an inverted page table? Why is it required?

10. List a strategy for preventing circular wait.

P.T.O.
PART – B

Answer any one question from each Module.

Module – I

11. a) Differentiate between hard real-time systems and soft real-time systems. Give 2 examples of each. 12
   b) Why did simple batch OS result in poor CPU utilization? What were the innovations made which led to a better CPU utilization? 8

12. a) Explain how i-node based file allocation is implemented? 12
   b) Compare the various file allocation methods and explain where each method is most suitable. 8

Module – II

13. a) What are the requirements to be satisfied by a solution to the critical section problem? 6
   b) Show that the Bakery algorithm satisfies the requirements mentioned above. 14

14. a) Explain how segmentation with paging is implemented. 12
   b) What are the steps involved in servicing a page fault? 8

Module – III

15. a) Can the disk scheduling algorithm be implemented in the disk drive controller, rather than in the OS? Why? 8
   b) Compare the various disk-scheduling algorithms. 12

16. a) How is deadlock prevention done? Explain the various methods used for deadlock prevention. 12
   b) Distinguish between access control matrix and access control list. Give examples for the use of each one. 8