ANNA UNIVERSITY COIMBATORE

B.E. / B.TECH. DEGREE EXAMINATIONS : JUNE 2009

REGULATIONS : 2007

FOURTH SEMESTER

070230013 - OPERATING SYSTEMS

(COMMON TO COMPUTER SCIENCE & ENGG. / INFORMATION TECH.)

TIME : 3 Hours   Max.Marks : 100

PART – A

(20 x 2 = 40 MARKS)

ANSWER ALL QUESTIONS

1. Differentiate a Hard realtime system and soft realtime system.

2. List the contents of Process control block.

3. Define the responsibility of medium-term scheduler.

4. Name any four system calls used in Unix environment.

5. Categorize the threads with respect to their areas of application.

6. Differentiate multithreading and multiprogramming.

7. Suggest any two solutions for Dining-philosopher's problem.

8. State the disadvantage of Dekker's solution over concurrency control in the critical section.

9. Derive the four necessary factors behind the occurrence of deadlock.

10. Why deadlock prevention is discouraged in modern operating systems?

11. Devise a formula to locate the address of an element in TLB.

12. Discuss any two advantages of activation segmentation along with paging.

13. Give one example on Belady's anomaly.

14. Provide one suitable environment that tempts to thrashing.

15. Compare demand paging and anticipatory paging with respect to (i) resource allocation (ii) error rate.

16. State any two driving forces behind the invention of virtual memory.

17. Define the functionality of a microkernel.

18. Can we call C-SCAN as a fair-scheduling mechanism? Justify.

19. List the contents of an i-node in Linux.

20. Writedown one pseudocode for the role of DMA in I/O access.

PART – B

(5 x 12 = 60 MARKS)

ANSWER ANY FIVE QUESTIONS

21. Compare the advantages and limitations of the following process scheduling algorithms with respect to their average waiting time and turn around time with one suitable example:

    (i)FIFO (ii)SJF (iii) SRT (iv) Roundrobin scheduling.

22. Derive the lifecycle environment of a process as a event-transition diagram.

23. State and devise an algorithm to represent sleeping-barber's problem.

24. Discuss Banker's algorithm in detail.

25. Compare any six features of internal and external fragmentation with respect to suitable examples.

26. Explain optimal page replacement strategy with a suitable sequence of pages.

27. Write down a pseudocode to calculate disk movement in the following algorithms: (i) LOOK (ii) C-LOOK.

28. Discuss the concept of virtual memory using any one version of Windows operating system.

********THE END*********