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B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2003.

Fourth Semester

Information Technology

IF 253 — OPERATING SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Mention the sequence of steps involved in the execution of an assembly language programming.

2. Distinguish the function performed by Loader and Linker.

3. List out the important features of third generation operating systems.

4. Show the layered structure of the operating system.

5. Define the degree of multi programming.

6. What is thrashing?

7. What are the essential requirements for longterm information storage?

8. Suggest the solutions for bad block problem in File systems.

9. State the conditions to avoid race conditions.

10. What is starvation?

PART B — (5 × 16 = 80 marks)

11. Discuss in detail the four strategies which are used for dealing with deadlocks. (16)

12. (a) Describe in detail the system softwares used in a Microprocessor system. (16)

Or

(b) Explain the concepts of Multiprogramming, Multiprocessing, Time sharing and Real Time Operating systems. (16)

13. (a) (i) Explain the concept of multiprogramming with variable partitions. (8)

(ii) Describe the memory management with the Buddy System. (8)

Or

(b) (i) Explain the type of fragmentation present in paging and segmentation systems. (8)

(ii) Explain the principle of the following page replacement algorithms : (8)

NRU, LRU and FIFO.

14. (a) (i) Explain the various allocation methods to manage the file storage. (8)

(ii) Discuss about File Descriptor and Access control matrix. (8)

Or

(b) (i) Explain the four layers of I/O software. (8)

(ii) Explain the principle of SSF and Elevation disk scheduling algorithms. (8)

15. (a) (i) Explain how the producer consumer problem can be solved by semaphores. (8)

(ii) Explain how event counters and message passing are used as inter process communication primitives. (8)

Or

(b) (i) Compare the performance of the well known process scheduling algorithms based on Response time, Efficiency and fairness. (10)

(ii) Explain why two level scheduling is commonly used. (6)
