G 215

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2003.

Fourth Semester

Information Technology

IF 253 — OPERATING SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is an assembler?

2. What are mnemonics?

3. What is spooling?

4. What are the different ways of structuring the operating systems?

5. What is memory compaction?

6. What is internal fragmentation?

7. What is the significance of open and close file operations?

8. What is access control matrix?

9. State the mutual exclusion problem.

10. Distinguish between preemptive and non preemptive scheduling.

PART B — (5 × 16 = 80 marks)

11. (i) Explain the structure of PCB. (4)

(ii) Explain the process state diagram. (5)

(iii) What is system call? (2)

(iv) Define Time Sharing and Real Time systems. (5)

12. (a) Explain the data structures used in Pass I of Assembler. Give the flowchart of Pass I and explain the same. (16)

Or

(b) (i) Explain macro expansion. (4)

(ii) Explain conditional macro expansion. (4)

(iii) Explain the loading schemes. (8)

13. (a) (i) Describe the consequences of multiprogramming with fixed partitioning and variable partitioning. Also explain the swapping process. (4 + 4)

(ii) Explain how memory can be dynamically allocated using first fit, best fit and worst fit strategies. (8)

Or

(b) (i) Explain the implementation of basic paging. (8)

(ii) Explain how sharing of pages can be achieved. (8)

14. (a) (i) Explain in detail the allocation and freeing the file storage space. (10)

(ii) Explain the backup and recovery of files. (6)

Or

(b) Explain the disk scheduling algorithms. (16)

15. (a) What is the job of a scheduling algorithm? State the objectives of a good scheduling algorithm. Explain round robin, priority and shortest job first scheduling algorithms. (16)

Or

(b) Define the deadlock problem. Explain in detail the prevention and recovery methods of deadlock. (16)
