

**H 1354**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2006.

Fourth Semester

Information Technology

IF 253 — OPERATING SYSTEMS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name the files generated by the Assembler.
2. What is a Multiprocessor OS? State its major functions.
3. What is a System Call? What are the various types?
4. What is memory compaction? Why it is not preferred generally?
5. Mention the advantages of using Translation Lookaside buffer.
6. How does OS identify a file as executable file?
7. What are the advantages of using Disks over main memory for storage?
8. What are the different ways to achieve mutual exclusion?
9. How does the CPU scheduler prevent the higher priority processes from indefinite running?
10. What are non resource deadlocks?

PART B — (5 × 16 = 80 marks)

11. (i) Describe the uses of program development tools such as Assembler, Linker and Loader. (12)
- (ii) How does the system software tools used with microprocessor differ from the system software tools used with personal computers. (4)

12. (a) (i) Explain in detail the different operating system structures. (10)  
 (ii) Explain the principle functions of Real time operating system and Time sharing operating system. (6)

Or

- (b) (i) Describe the Process models and their implementations. (6)  
 (ii) Discuss about the Inter process communication primitives. (10)
13. (a) (i) Explain the multiprogramming with fixed and variable memory partitions. Also explain how the Relocation and Protection problems can solved in multiprogramming environment. (10)  
 (ii) Discuss about the consequences of Internal and External memory fragmentations. (6)

Or

- (b) (i) Discuss the segmentation with paging technique for mapping the virtual address to physical address. (8)  
 (ii) For the given page trace, calculate the Hit ratio for LRU and FIFO Page replacement algorithms with 3 page frames.  
 Page Trace : 0 1 2 4 2 3 7 2 1 3 1. (8)
14. (a) (i) Discuss the methods of implementing Files and File directories. (8)  
 (ii) Discuss about File system Security flaws and Security attacks. (8)

Or

- (b) (i) Explain the need and functions of a I/O device controller. (8)  
 (ii) Describe the functions of Interrupt Handler and Device drivers. (8)
15. (a) (i) Explain the use monitors for resource allocation. (8)  
 (ii) Compare the principle and performance of CPU scheduling algorithms. (8)

Or

- (b) (i) Define Deadlock problem. What are its causes? How do you model the deadlocks? (6)  
 (ii) Discuss the methods of deadlock detection and Recovery. (10)

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