Reg. No. : | | | | | | | | | | | |

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B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2007.

Fourth Semester

Information Technology

IF 253 — OPERATING SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. State the function of Loader.
2. What are OS system calls?
3. What is External memory fragmentation?
4. Define Page fault.
5. What is the principle of LRU page replacement algorithm?
6. State the use of character special files.
7. List the functions of Disk controller.
8. State the principle of Sleep/Wakeup primitive.
9. Non-preemptive scheduling is called Run-To-Completion. Justify.
10. What are the drawbacks of Banker's algorithm in avoiding deadlock?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the function of the Second pass of an assembler with the necessary flow-chart. (8)

(ii) Explain the role of Linker and Loader in program execution. (8)

Or

(b) (i) Discuss about the different OS structures in detail. (10)

(ii) Explain the features of Time sharing and Real time operating systems. (6)

12. (a) (i) Explain the Relocation and Protection problems and their solutions in multiprogramming environment. (8)

(ii) Describe multiprogramming with variable partitioning memory management. (8)

Or

(b) (i) Explain the need for Page replacement. Explain any two page replacement algorithms. (8)

(ii) Discuss about Segmentation with paging in virtual memory. (8)

13. (a) (i) Explain Blocking and Buffering processes in File system. (6)

(ii) Describe File structure, File attributes and file operations in detail. (10)

Or

(b) (i) Explain the importance of File system security. (8)

(ii) Explain the File backup and recovery processes. (8)

14. (a) (i) Explain the function of Device drivers and Interrupt handlers. (8)

(ii) Write about Disk space management and Disk error handling. (8)

Or

(b) Explain the concept of process synchronization using Semaphores. How can the Reader/Writer problem be solved using semaphores? (16)

15. (a) (i) What is the job of a scheduling algorithm? Define the characteristics of a good scheduling algorithm. (6)

(ii) Compare the performance of various process scheduling algorithms. (10)

Or

(b) Discuss about any two Deadlock detection methods, giving suitable examples. (16)
