

E 274

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

Fifth Semester

Computer Science and Engineering

CS 333 — OPERATING SYSTEMS

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is meant by “Hard-real Systems and Soft-real Systems”?
2. What is a Micro Kernel based Operating Systems?
3. Define the term “CRITICAL SECTION”.
4. Name the four necessary conditions for deadlocks to occur.
5. Name the three different types of scheduling.
6. List out the differences between paging and segmentation.
7. Define the terms “WORKING SET” and “THRASHING”.
8. Name any two file system objects that are neither files nor directories and what is the advantage of doing so.
9. Name the various allocation methods used for implementing file systems.
10. Explain the purpose of “OPEN” and “CLOSE” operations in UNIX.

PART B — (5 × 16 = 80 marks)

11. (i) Explain the Producer-Consumer problem with bounded buffer using either message passing or semaphores.
(ii) What are the techniques involved in dead lock detection and recovery?

12. (a) What are the essential features of Virtual Machine and Client/Server based Operating Systems?

Or

- (b) What are the important issues involved in the Design and Implementation of Operating Systems?

13. (a) (i) Explain the criteria for scheduling.
(ii) Describe in detail the multi-level feedback queue scheduling.

Or

- (b) Discuss the salient features and merits of multilevel paging and inverted page tables.

14. (a) Explain in detail the WS clock page replacement algorithm.

Or

- (b) (i) Discuss the file system organisation and file system mounting.
(ii) Explain the merits and demerits of any one file system allocation method.

15. (a) Discuss with diagrams the following three disk scheduling : FCFS, SSTF, C-SCAN.

Or

- (b) Compare and contrast the FREE SPACE and SWAP SPACE management.