

FACULTY OF ENGINEERING

B.E. II/IV Year (CSE) II Semester (Main) Examination, May/June 2011

OPERATING SYSTEMS

Time : 3 Hours]

[Max. Marks : 75

Answer **all** questions from Part A.Answer any **five** questions from Part B.**Part A - (Marks : 25)**

1. What is the advantage of the layered approach to design of operating systems? 2
2. What is the function of the Dispatcher in the CPU scheduling function? 3
3. What is the need for hierarchical paging in memory management. 2
4. What problems of contiguous allocation does the linked allocation method? Solve. 3
5. How are counting semaphores different from binary semaphores. 2
6. How is deadlock avoidance different from deadlock prevention? 3
7. What do you understand by "Rotational latency"? 2
8. Differentiate between 'maskable' and 'non-maskable interrupts'. 2
9. What are the three main components of a LINUX system? 3
10. What is the use of plug-and-play manager in WINDOWS XP? 3

Part B - (Marks : 50)

11. (a) Explain the importance of system calls and system programs. 5
- (b) How do processes change their states, explain with suitable diagram. 5
12. (a) Why are segmentation and paging sometimes combined into one scheme? Explain with suitable diagram. 4
- (b) Consider a system that supports the strategies of contiguous, linked and indexed allocation. What criteria should be used in deciding which strategy is best utilized for a particular file? 6
13. (a) Briefly explain the use of monitors in solving the dining - philosopher problem. 7
- (b) What are the different ways of preventing deadlocks? 3

[P.T.O.]

14. (a) How is the improvement in reliability and performance achieved by including RAID structures? Explain. 4
- (b) Explain the life cycle of a blocking read request to show the various steps required for an I/O operation. 6
15. (a) How does the Linux Kernel handle different types of files? Explain. 4
- (b) Briefly explain the different layers in the architecture of Windows XP. 6
16. (a) Bring out the importance of the different types of schedulers in proper scheduling of processes for higher performance. 5
- (b) What are the different ways of recovery from deadlock? What factors determine which process should be chosen? 5
17. Write short notes on any **two** : (5 × 2 = 10)
- (a) Various page replacement algorithms.
- (b) Implementation of Access Matrix using capability lists.
- (c) Dynamic linking of libraries in LINUX system.

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