

SATHYABAMA UNIVERSITY

(Established under section 3 of UGC Act, 1956)

Course & Branch: B.E/B.Tech – CSE/IT (Dual CSE)

Title of the paper: Operating Systems

Semester: IV

Sub.Code: 6C0063(2004-2006-2007)

Date: 04-05-2009

Max.Marks: 80

Time: 3 Hours

Session: FN

PART – A

(10 x 2 = 20)

Answer All the Questions

1. Compare a process and a thread.
2. How does double buffering function?
3. Define process address space.
4. What is the difference between preemptive and non-preemptive scheduling strategies?
5. State the necessary conditions for the occurrence of deadlock.
6. How are processes recovered from deadlock?
7. Define Belady anomaly.
8. What are meant by Internal and External fragmentations?
9. How do filters work in Linux?
10. Write a code to count the number of characters available in a given input string.

PART – B
Answer All the Questions

(5 x 12 = 60)

11. Explain in detail about the various Operating System strategies.
(or)
12. (a) Explain the usage of fork (), quit (), join() with an example.
(b) List some basic functions of Operating System and explain them in detail.
13. (a) Explain the detail maintained by the process abstraction.
(b) Explain how semaphore help to solve the critical section problem. Also show the implementation of semaphore with readers-writers problem.
(or)
14. Consider the following five processes, with the length of CPU burst time given in milliseconds.

Process	Burse Time
P1	10
P2	29
P3	3
P4	7
P5	12

Consider the FCFS, Non preemptive SJF, Round robin (with quantum = 10 milliseconds) scheduling algorithms. Illustrate the scheduling and find the wait time, turnaround time, average wait time and average turn around time.

15. (a) Explain different types of inter process communication system. (b) What are monitors? Give the implementation details.
(or)
16. Explain bankers and resource allocation graph for deadlock avoidance.

17. (a) Explain the following memory allocation algorithms.
(i) First fit (ii) Best fit (iii) Worst fit
Given memory partition of 100K, 500K, 200K, 300K, and 600K, how would each of these algorithms place processes of 212 K, 417 K, 112 K and 426 K in order? Which algorithm makes the most efficient use of the memory?
(b) Explain First In First Out, Optimal page replacement strategies algorithm with suitable examples.
(or)
18. Explain the various protection and security mechanisms need to be implemented by Operating System.
19. (a) Explain the Linux file structure with neat diagram.
(b) What is meant by regular expression and explain it with appropriate examples.
(or)
20. With example programs, explain the arithmetic operations, control structures and system information of shell programming.

