

Turn this assignment in electronically using the Curator system. No late assignments will be accepted. Submit your assignment as a text (.txt), MS Word (.doc), Rich-text format (.rtf), or Adobe Acrobat (.pdf) file. **Be sure to include the following information in your file: your name, your student id number, “CS 3204 Fall 2005 Homework #2”, and the honor pledge statement.**

References to Stallings below refer to the course textbook by William Stallings, “Operating Systems: Internals and Design Principles – Fifth Edition,” Prentice Hall, ISBN 0-13-147954-7.

1. [10 points] Problem 2.3 from Stallings, page 104.
2. [5 points] Problem 2.4 from Stallings, page 104.
3. [10 points] What problem does virtual memory help address?
4. [5 points] What is the difference between multiprogramming and multiprocessing?
5. [10 points] Problem 3.4 from Stallings, page 150.
6. [10 points] What is a process control block and how does it relate to a process image?
7. [10 points] Why are there two suspend states in **Figure 3.9b** of Stallings? In other words, what problem does having two suspend states help solve?
8. [10 points] Briefly describe the difference between a process switch and a mode switch.
9. [10 points] When can a process switch occur? Give a general answer and also provide four specific situations which could lead to a process switch.
10. [10 points] In class, we discussed how I/O interrupts result in a mode switch from user mode to kernel mode. A question was asked about how this works for system calls. Stallings provides a description of this in Chapter 3. For this question, read that section of Stallings and briefly summarize how system calls result in a mode switch from user mode to kernel mode.
11. [10 points] What is the primary advantage of executing most operating system components within a user process?