Homework 1
Due: Feb 12, 2015

Please type your answers to the following questions and submit the pdf on Beowulf. The instructions to submit on beowulf can be found on Moodle. This homework is to be done individually; you can discuss the questions with your classmates, but you should write your answers individually.

1. Explain Multiprogramming and Multitasking. (5 + 5)?
2. Why is it a good idea to overlap computation and I/O on a machine? (10)?
3. What is the purpose of having the User mode and the Kernel mode in CPU? (10)
4. Why is I/O a privileged operation? (10)
5. Which of the following instructions should only be executed in kernel mode: (2 + 2 + 2 + 2 + 2)

    a) Write the program counter?
    b) Set the time-of-day clock
    c) Set mode to kernel mode
    d) Reboot machine

6. What is the function of system calls? (10)
7. Describe any two methods of passing parameters to the Operating System for system calls. (5 + 5)
8. What is memory protection? Explain a way of providing memory protection in the Operating System. (5 + 5)
9. What are the advantages and disadvantages of using a monolithic architecture for an OS kernel? (5+5)
10. What is a trap? What is the purpose of a trap vector? (5+5)?