

Homework Assignment 1

CSC 4103 Operating Systems, Spring 2017

Name (Last, First): _____

Questions (10 points = 1pt X 10)

1. What are the three main purposes of an operating system?
2. How does the distinction between kernel mode and user mode function as a rudimentary form of protection (security) system?
3. Which of the following instructions should be privileged?
 - (a) Set value of timer.
 - (b) Read the clock.
 - (c) Issue a trap instruction.
 - (d) Turn off interrupts.
 - (e) Modify entries in device-status table.
 - (f) Switch from user to kernel mode.
 - (g) Access I/O device.
4. Describe the differences between symmetric and asymmetric multiprocessing. What are three advantages and one disadvantage of multiprocessor systems?
5. What is the purpose of interrupts? What are the differences between a trap/exception and an interrupt? Can a user program generate traps intentionally? If so, for what purpose?
6. What is the purpose of system calls?
7. Describe three general methods for passing parameters to the operating system.
8. Why is the separation of mechanism and policy desirable?
9. What are the main advantages of the microkernel approach to system design? How do user programs and system services interact in micro-kernel architecture? What are the disadvantages of using the microkernel approach?
10. What are the two models of interprocess communication? What are the strengths and weaknesses of the two approaches?

NOTE: Submit your solutions (typed in hard copy) by **February 2nd (Thursday)** during the class time. Answer all questions completely and concisely. Late submissions will be penalized at the rate of 10% per day late and no more than 3 days late.