

Assignment 1
(Due by **9/21/2010/Tuesday, in class**)

Your name:	Score:
------------	--------

Provide brief solutions (see the *important notes* at the end of the assignment) to the following OS questions related to the textbook Chapters 1 & 2:

1. What are the three main purposes of an operating system?
2. List the four steps that are necessary to run a program on a completely dedicated machine—a computer that is running only that program.
3. What is the main difficulty that a programmer must overcome in writing an OS for a real-time environment?
4. How does the distinction between kernel mode and user mode function as a rudimentary form of protection (security) system?
5. Describe the differences between symmetric and asymmetric multiprocessing.
6. (a) How do clustered systems differ from multiprocessor systems? (b) What is required for two machines belonging to a cluster to cooperate to provide a highly available service?
7. (a) What is the purpose of interrupts? (b) What are the differences between a trap and an interrupt? (c) Can traps be generated intentionally by a user program? (d) If so, for what purpose?
8. Briefly describe how DMA works.
9. Define the essential properties of the following types of operating systems: (a) Interactive, (b) Time sharing, (c) Real time, and (d) Handheld.
10. What is the purpose of system calls?

11. What are the five major activities of an OS with regard to process management?
12. What are the three major activities of an OS with regard to memory management?
13. What are the three major activities of an OS with regard to secondary-storage management?
14. List five services provided by an OS.
15. Describe three general methods for passing parameters to the operating system.
16. What are the five major activities of an operating system in regard to file management?
17. Why is the separation of mechanism and policy desirable?

===== **Important Notes** =====

- Solutions must be **typewritten** (The question text is not required).
 - Have all your solutions **in the same order** as the above questions.
 - Your answers must be succinct and brief: using keywords/phrases is encouraged and no complete sentences are required. For each of the above questions, **your answer must be limited within 30 words** (with exception of the questions 6, 7, and 9)—otherwise, your score for that question will be 0.
-
-