Home Assignment 1
Chapter 1, An overview of Computer Security.

N.B. I HAVE DROPPED THE LAST TWO QUESTIONS (FOR NEXT TIME) AND ADDED THE FIRST ONE.

Exercises: 1, 2 (a. to g.), 3, 4, 5, 8, 12 below.

TO BE HANDED IN ON: 2-3-2010

1.12 Exercises

1. Classify each of the following as a violation of confidentiality, of integrity, of availability, or of some combination thereof.
   a. John copies Mary’s homework.
   b. Paul crashes Linda’s system.
   c. Carol changes the amount of Angelo’s check from $100 to $1,000.
   d. Gina forges Roger’s signature on a deed.
   e. Rhonda registers the domain name “AddisonWesley.com” and refuses to let the publishing house buy or use that domain name.
   f. Jonah obtains Peter’s credit card number and has the credit card company cancel the card and replace it with another card bearing a different account number.
   g. Henry spoofs Julie’s IP address to gain access to her computer.

2. Identify mechanisms for implementing the following. State what policy or policies they might be enforcing.
   a. A password changing program will reject passwords that are less than five characters long or that are found in the dictionary.
   b. Only students in a computer science class will be given accounts on the department’s computer system.
   c. The login program will disallow logins of any students who enter their passwords incorrectly three times.
   d. The permissions of the file containing Carol’s homework will prevent Robert from cheating and copying it.
   e. When World Wide Web traffic climbs to more than 80% of the network’s capacity, systems will disallow any further communications to or from Web servers.
   f. Annie, a systems analyst, will be able to detect a student using a program to scan her system for vulnerabilities.
   g. A program used to submit homework will turn itself off just after the due date.

3. The aphorism “security through obscurity” suggests that hiding information provides some level of security. Give an example of a situation in which hiding information does not add appreciably to the security of a system. Then give an example of a situation in which it does.

4. Give an example of a situation in which a compromise of confidentiality leads to a compromise in integrity.

5. Show that the three security services—confidentiality, integrity, and availability—are sufficient to deal with the threats of disclosure, disruption, deception, and usurpation.

6. Is it possible to design and implement a system in which no assumptions about trust are made? Why or why not?

7. Computer viruses are programs that, among other actions, can delete files without a user’s permission. A U.S. legislator wrote a law banning the deletion of any files from computer disks. What was the problem with this law from a computer security point of view? Specifically, state which security service would have been affected if the law had been passed.