

### Homework Assignment #3 (100 points)

1. When files are deleted in an operating system the space is typically returned to the free list but the blocks are not erased. Describe how a system can be designed so that the data is not recoverable. (15 points)
2. What is the difference between a virus and a worm? How does each reproduce? (25 points)
3. Name three different protection mechanisms we discussed (5 points). For each of the following protection problems tell which of these mechanisms can be used (5 points each)
  - a. Michael and John want to share some secret files
  - b. Susan wants some of her files to be public
  - c. Dennis wants his files readable by everyone except his roommate
4. List 5 different pathnames to the file `/etc/shadow` (5 points)
5. The Windows file system provides a command called REN (rename). What is the difference between this and copying the file with a new name and then deleting the old one? (15 points)
6. Describe two differences between file access control lists and file permissions. (5 points) Which are more flexible? (5 points)
7. List three attacks against systems protected using full-volume encryption (10 points)