CS 4061, Spring 2000, Exam 2

Name:_____________________ **ID#________________________**

Question 1. File Integrity (20 pts.)

List and explain three methods that cooperating processes could use to coordinate their access to a file in order to prevent data loss or corruption.

1.

2.

3.

Question 2. File Integrity. (20 pts.)

Of the three methods you listed in Question 1, which method do you think is the best method to use in order to coordinate file access? List and explain two advantages of this method over *each* of the other methods.

Question 3. Terminal I/O. (20 pts.)

For each of the following items, say if we should use canonical or non-canonical mode and why. For each, what other terminal properties should be set and why.

A. A "pager" program that displays a text file one page at a time. Hitting "space" causes it to scroll forward one page, hitting the up and down arrows cause it to scroll up and down one line respectively, and hitting "1" causes it to return to the first page of text in the file.

B. A database entry routine that has the user enter data into fields of the data records in response to prompts printed on the screen. When the user is done, he or she enters a blank line (that is, just hits "return").

C. A start-up routine for a program that says, "Initializing system, hit <esc> to run set-up routines." The program then gives the user five seconds to hit the "escape" key before it begins initialization.

Question 4. Signals. (20 pts.)

List and explain three different methods that you could have a program implement to prevent it from being interrupted by a user typing Control-C at the keyboard.

Question 5. Files and Directories. (20 pts.)

For each of the following system calls, say whether it is possible for this system call to modify an i-node, a normal file block, and/or a directory block.

`link`

`unlink`

`open`

`read`

`write`

`stat`

`lstat`

`lseek`

`fcntl`

`mkdir`

`chdir`

`opendir`