Midterm 1–February 24
Closed book section (64 points)

The exam is to be turned in at 1:50 pm. Work the closed book section first and turn it in before you consult your books and notes to work on the open book section. For the closed book section, write your answers on the exam itself. For the open book section, write your answers on separate pieces of paper.

University regulations require that you sign the following pledge on the first page of your turned-in exam.

I have neither received nor given any unauthorized aid on this exam. ⎯⎯⎯⎯⎯⎯⎯⎯

Problem 1. (24 points–4 points each)

Give short definitions (one or two phrases or sentences) of the following terms.

inode

link count

process

kernel mode

mutual exclusion

file descriptor

Problem 2. (16 points–4 points each)

Give a brief description of what the following UNIX system calls do at the user level. *You don't need to describe the implementation!*

lseek(fd, offset, reference)

chdir(pathname)

pipe(fdptr)   *–don't worry about which end is which*

close(fd)

Problem 3. (5 points)

　　Which two Turing award winning computer scientists developed the original UNIX system and what company did they work for at the time?

Problem 4. (4 points)

　　Suppose a C program starting with the following header:

```
main(argc, argv)
    int argc;
    char *argv[];
```

is compiled and the compiled code is stored in the file `gigo`. If the command:

　　`% gigo hellow world`

is executed, what is the value of `argc` and the array elements of `argv`?

Problem 5. (9 points)

　　Consider the "delayed write." Name one advantage and one danger of using this technique in an operating system. Name one way of lessening the dangers of the delayed write.

Problem 6. (6 points)

　　What is the difference between a logical file address and a physical disk address? How are they associated with each other?