

Final exam—May 3, 9:00 AM
Closed book section (50 points)

The exam is to be turned in at 12:00 high noon. (Then you can turn in your card for \$10, and we can all go out to get pizza.)

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. (27 points—3 points each)

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

broadcast (message)

collision detection

protocol

virtual circuit

“well known” port

u area

reference count

critical region

file descriptor

Problem 2. (12 points–3 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 but say something about what they return.*

`bind(s, name, namelen)`

`chmod(path, mode)`

`dup(oldfd)`

`kill(pid, sig)`

Problem 3. (2 points)

Why is `napoleon` sometimes called `napoleon.cs.unc.edu`?

Problem 4. (3 points)

Differentiate between a name server and a name resolver.

Problem 5. (3 points)

Differentiate between a shared memory “key” and a shared memory descriptor (sometimes also called an “index” or “id”).

Problem 6. (3 points)

Describe caching and give at least two examples of it seen in this course.