

Name \_\_\_\_\_

Please circle your section number (refer to table below if you are not sure):

010 011 012 013

014 015 016 017

018 019 020 021

018,019,020,021 LEC MWF 10:10AM-11:00AM SMI 209 CONRAD P  
 018 LAB F 9:05AM-9:55AM PRS 114  
 019 LAB F 11:15AM-12:05PM PRS 114  
 020 LAB F 12:20PM-1:10PM PRS 114  
 021 LAB F 1:25PM-2:15PM PRS 114

010,011,012,013 LEC MWF 11:15AM-12:05PM GOR 104 CONRAD P  
 011 LAB F 9:05AM-9:55AM WHL 009  
 012 LAB F 10:10AM-11:00AM WHL 009  
 013 LAB F 12:20PM-1:10PM SMI 040  
 010 LAB F 2:30PM-3:20PM PRS 114

014,015,016,017 LEC MWF 1:25PM-2:15PM WHL 109 CONRAD P  
 014 LAB F 11:15AM-12:05PM WHL 009  
 015 LAB F 12:20PM-1:10PM WHL 009  
 016 LAB F 2:30PM-3:20PM WHL 009  
 017 LAB F 3:35PM-4:25PM WHL 009

## General Instructions

- DO NOT WRITE YOUR NAME ON ANY PAGE EXCEPT THIS ONE!
- You have 50 minutes
- **Pace Yourself!!!!**

Pay attention to the point values. When there are 10 minutes left, skim through and be sure you have at least written *something* for the questions that are worth many points.

- Read *all* the directions *carefully* on each problem.
- Good luck.

1. (6 pts) The following code segment contains a for loop. Rewrite the code so that it performs equivalent processing (given the same input, it produces the same output) using a while loop.

```
sum=0;
for (i=1; i<=n; i++)
{
    sum+=(i*i);
}
printf("sum=%d\n",sum);
```

2. (3 pts) In the expression  $\text{sqrt}(2*x) - b$ , what is the *constant*?
3. (3 pts) In the expression  $\text{sqrt}(2*x) - b$  how many binary operators are there?
4. (3 pts) In the expression  $\text{sqrt}(2*x) - b$  how many arguments are passed to the function call?

5. (8 pts) Here are four tries at writing a function to square a number. Two of them are correct, and two of them are wrong. Circle the ones that are wrong, and write an explanation of what is wrong beside each of the wrong ones.

- First try:

```
double squared(double x)
{
    double result;
    result = x * x;
    return;
}
```

- Second try:

```
double squared(double x)
{
    double result;
    result = x * x;
    return result;
}
```

- Third try:

```
void squared(double x)
{
    double result;
    result = x * x;
    return result;
}
```

- Fourth try:

```
double squared(double x)
{
    return x * x;
}
```

6. The following questions all deal with the program below, which as of right now, is incomplete.

- (a) (5 pts) Fill in the missing code to print out the value of  $y$  (see the comments.)
- (b) (5 pts) Assuming that this code is in a file called `example.c` give a command that will compile the file into an executable program.

```
/* example.c   An example for CIS105 Midterm 2 */

#include <stdio.h>
#include <math.h>

int main (void)
{
    double x = 36.0;
    double y;
    y = sqrt(x);

    /* add a line following this comment to print out the value of y */

    return;
}
```

7. (3 pts) Suppose you have a file called `webpage.html` sitting in your home directory on `strauss`. Let's assume that the contents of the file are exactly what you want to appear on your web page, and all you need to do is put the file in the right place. Write a unix command, or sequence of unix commands that will accomplish that task.

Assume that your current directory is your home directory on `strauss`.

8. (3 pts) Suppose that your `strauss` userid is `foobar`. What would you type into a web browser to bring up your home page on the UDEL composers (copland, strauss, etc.?)

9. (3 pts) Suppose when you type this in, you get the following message:

You don't have permission to access that file on this server.

What Unix command can you type to fix this problem?

10. (5 pts) Briefly explain the difference between the `rand()` function and the `srand()` function.

11. You are given part of a C program below.

- (a) (5 pts) Fill in the missing code on the line marked `/* missing code here */` inside the `isPrime()` function.
- (b) (20 pts) Fill in the body of the `ithPrime` function. You can do this on the facing page. The comments explain what this function should compute.

```
/* ithprime.c A program to find the ith prime number */

#include <stdio.h>
#include <math.h>

int isPrime(int a);
int ithPrime(int i);

int main (void)
{
    int i;

    /* prompt user for input */

    printf("Please enter i > ",i);
    scanf("%d",&i);

    /* compute and print */

    printf("The ith prime number is %d",ithPrime(i));

    return 0;
} /* end main */

int isPrime(int a)
{
    int i;

    for (i=2; i<=sqrt((double)(a)); i++)
    {
        if (
            return 0; /* not prime */
        ) /* <===== missing code here */
    }
    return 1; /* prime */
} /* end isPrime */
```

```
int ithPrime(int i)
{
    /* return the ith prime number.
    For example, if i is 1, return 1
                   if i is 2, return 2
                   if i is 3, return 3
                   if i is 4, return 5
                   if i is 5, return 7
                   if i is 6, return 11
                   etc.

    Your function should work for arbitrarily large values;
    i.e. you may not simply hard code the values above.

    That is, for i = 37, you should return 151,
               for i = 1000, you should return 7907, etc.

    Note: the solution is not complicated: a correct answer should
    probably require less than 15 lines of code, perhaps even less than 10.

    */

} /* end ithPrime */
```

If you run out of room because you mess up and need to start over,  
there is blank space on the next page.

Extra space in case you need it.







