ECE 270 Test #2
April 18, 1999
Honor code in effect

(35) Write a C program called prog1.c that will find the number of times a given integer occurs in a set of integers entered by the user using the function count_number written by you. For example, suppose that the following sequence of 12 integers has been entered and the given integer is 3:

{5, 6, 3, 8, 3, 7, 8, 3, 1, 5, 3, 2}

The program would print out '4' since the integer 3 occurs four times. The following code fragment is an example of how it is to be used and may be used in your code if you wish:

```
int count, array[50], integer, numpts;
/* Code goes here to read in data entered by the user (numpts, integer, pt1, pt2, etc )*/
count = count_number(num, integer, array);
```

Note that your program should consist of main and count_number in which main is to print the count for the given integer value after calling the function.

2. (35) Write a C program called prog2.c that will calculate the average of a set of numbers entered by the user **on the command line** using the function calc_average written by you. The following code fragment is an example of how it is to be used and may be used in your code if you wish:

```
double average, array[50];
int num;
/* Code goes here to read in data entered by the user on the command line */
average = calc_average(num, array);
```

Here calc_average finds the average of the num data points contained in array[]. Note that your program should consist of main and calc_average and that main is to print the average value after calling the function.

3. Briefly answer the following questions. Please save your answers as a comment at the end of prog2.c

a. (5) What is the significance of argv[0]?

b. (5) Write a function prototype for the function count_number in problem 1.

c. (5) How can a program be written so that function prototypes are not required but the benefits of function prototypes are retained?

d. (5) Why should global variables be avoided?

e. (5) What is meant by the scope of a variable? This can be answered in a very short simple sentence!

f.. (5) When can a variable be declared in a C program?

Note: You may only use the floppy disk that has been provided for this test. Also, please call your first program prog1.c and your second program prog2.c. It would be a good idea to save backup copies of your programs using file names like prog1bu.c and prog2bu.c. Please return this sheet with your name on it when you return your tests and floppies. **Be sure to include your name as a comment in each program, put your name on your disk, and sign the honor code below.**

I have neither given nor received aid on this examination_____

Print your name:_____