Name: _____

___ out of 100 Points.

Instructions:

- Put your name on the question sheet NOW!

- Please write down your answers on the question sheet.

- The exam is open-notes and open-books.

- Use your time wisely - if you get stuck on one problem, go on to another problem.

- Show all your work. Partial credit is possible, but only if you show the intermediate steps in obtaining the answer.

- If you are uncertain about what assumptions to be made in a question, ask the proctor and explicitly state your assumptions at the beginning of your answer.

- The number of points for each question is given in parenthesis. The total points are 100.

- Good luck!

1. (*10 points*) What is wrong with the following print line statement?

```
cout<<"My First C++ Program<<endl;
```

2. (*10 points*) Rewrite the following program with better formatting to make it easier to read.

```
#include <iostream>
using namespace std; int main () { cout << "Hello, World!"; return 0; }
```

3. (*10 points*) What is wrong with the following code fragment? Please provide suggestion to fix it.

```
int count, sum;
cout << "Input the count and the sum separated by a space" << endl;
cin >> count >> sum;
if (count == 0)
{
        cout << "The average is " << sum/count << endl;
} else {
        cout << "Sorry! You cannot take an average of zero items." << endl;
}
```

4. (*10 points*) Show the values that the specified variables contain after the following code is executed. Specify the number of times the loop will be executed.

```
int i = 0;
int num = 1;

while (i < 16){
    i = num;
    num = 2 * num;
}
```

5. (*15 points*) Convert the following for loop to a while loop.

```
for(i = 0; i < num; i++)
{
    cout << i << "    Enter a value: ";
    cin >> val;
    cout << "\nYou entered " << val << endl;
}
```

6. (*15 points*) What is the output of the following code fragments?

a.
```
int x = -1, y = 0;

while(x <= 3)
{
    y = y + 2;
    x = x + 1;
}

cout << y;
```

b.
```
int a = 4, b = 2, c = 5;

if(a > b)
{
        a = 5;
}
if(c == a)
{
        a = 6;
}
else
{
        a = 7;
}

cout << a;
```

7. (*15 points*) Correct the errors (they may be either syntax or logic errors) in each of the following code segments (you may assume that all necessary header information, etc. is correct). There may be more than one error in each, and your corrections may be simply a re-write of a single line, or may require some re-organization of the code. Circle the errors, and write your corrections in the space to the right of the code. Assume that what is in comments is the correct, desired behavior.

a.
```
//Calculate the sum of all entered int values greater than 5.
//An entered value of -1 will indicate the end of input.

        int x, sum;

        cin >> x;
        while (x >= 0)
        {
                if( x > 5 );
                {
                        sum = sum + x;
                }
        }

        cout << "The sum of all numbers > 5 is: " << sum << "\n";
```

b.
```
char choice;
cin >> choice;
switch (choice)
{
        case a:
                cout << "case a";
                break;
        default:
                cout << "sorry!";
}
```

8. (*15 points*) Write a code fragment that uses a for loop to calculate the sum of all numbers between (and including) two integers entered at the keyboard. e.g. if the numbers 4 and 9 are entered, the result will be $4 + 5 + 6 + 7 + 8 + 9 = 39$ Declare and initialize variables as needed, and output the sum after the loop terminates.