Practice Exam – Getting Started (100 points)

Name:

Email Address:

1. (25 points) Problem Solving

a. Write an algorithm to balance a checkbook:

b. If you were to write a program to balance a checkbook, think about what C++ constructs would be useful for such a program. List three C++ constructs that could be used for such a program and explain how they would be used

2. (25 points) Style and Ethics

a. Given this program (without any style!) – please rewrite it with "style"

```
#include <iostream>
using namespace std;
int main() {int a=0;int b; cin>>b; if (b<=0)cout <<"Done";a=a+b;
return 0; }
```

Now examine the original program. Think about how the user would run such a program – answer these questions:

b. What issues would the user encounter?

c. What could you do to make it better?

3. (25 points) Getting Started with C++

Given the following variables, answer the following questions

```
int num1, num2;
```

a. Write a C++ statement to read in (input) two whole numbers (into num1 and num2)

b. Write a C++ statement to now output both numbers

c. Write an if statement that is true if either `num1` is positive or `num2` is negative:

```
if (            )
```

d. Write an if statement that is true if `num1` is between 15 and 20:

```
if (            )
```

e. Write an if statement that is true if both `num1` and `num2` are not less than two hundred:

```
if (            )
```

f. Write an if statement that is true if `num1` is either 10, 20, or 30:

```
if (            )
```

Short Answer:

a. Which of these increments a variable by 1: (circle your choice)

variable + 1; ++variable; variable = variable*1; variable +=variable;

b. Which of the following increments a variable by 2: (circle your choice)

variable + 2; ++variable; variable = variable*2; variable +=2;

4. (25 points) Character data and Loops in C++

Given the following variables, answer the following questions

```
char letter;
```

g. Write a C++ statement to read in (input) a single character (into letter)

h. Write a C++ statement to now output the character

i. Write an if statement that is true if the character is a Y or N

```
if (            )
```

j. Write an if statement that is true if the character is an upper or lower case Y

```
if (            )
```

a. Write a **while** loop that finds the average of all of the whole numbers entered from the user, until a –1 is encountered (the –1 should not be included in the calculation of the average). ** if you can't find the average – then provide the sum total of all of the numbers ***