CS 2500, Spring 2011 – Programming II
Quiz 1
March 9, 2011

- All answers must be your own work.
- All cell phones, electronics and headsets, must be turned off and out of sight.
- To receive full credit, **show your work** and write legibly.
- There are 8 problems on 3 pages.
- If you need clarification about any of the problems, please raise your hand.

Name: _____

1. What is an algorithm?

2. Briefly explain Top-Down Design and give an example.

3. What happens in the Specification and Design phases of software development?

4. Why and how would a named constant (`const`), or `typedef`, statement be used in a C++ program?

5. Rewrite the while loop as a for loop:

```
while (n > 1)
     result *=n--;
```

6. What is the output that would result from executing the C++ statements given? Write the output exactly as it would appear on screen. (Represent white space and newlines as accurately as possible too.)

a.

```
int k, i;
for (k=0; k<4; k++)
{
  for (i=1; i<=5; i++)
  {
    cout << "     " ;
    cout << i-k  ;
  }
  cout << endl ;
}
```

b.

```
cout << 30 - 12 / 3 << endl;
cout << "30 - 12 / 3" << endl;
cout << 2+3*3-1 << endl;
```

c.

```
#include <iostream>
using namespace std ;

void doStuff(int& X1, int X2);

int main ()
{
  int n1 = 1, n2 = 2;
  doStuff(n1, n2);
  cout << "n1 in main"
      << " = " << n1 << endl;
  cout << "n2 in main"
      << " = " << n2 << endl;

  return 0 ;
}

void doStuff(int & X1, int X2)
{
  X1 = 100;
  cout << "X1 in call to doStuff"
       << " = " << X1 << endl;
  X2 =222;
  cout << "X2 in call to doStuff"
      << " = " << X2 << endl;
}
```

7. Write a complete C++ program that prompts the user to enter ten real numbers, then computes and prints the maximum and the minimum of the values.

8. Each of the following has at least one error, either intent, or an error that may be caught by the compiler or both). What is the error? Assume all the variables you see are defined and initialized.

A)
```
for(int i = 0; i <10; i++);
            product = product * 10;
```

B)
```
if (x > 0)
            x = 3
      else
            x = 4;
```

C)
```
if(x = 0)
      x = MIN_SIZE;
```