CS 115 Midterm 1 Review Quiz

October 2, 2008

Group members:

Rules

- You must briefly explain your answers to receive partial credit.
- All snippets of code can be assumed to be enclosed within `int main()`. You can assume that the `iostream`, `fstream`, `iomanip`, `string`, and `cmath` libraries have been included at the beginning of the program.
- When you are asked to write *a snippet* of code, you may also assume that it is enclosed within `int main()` and that any necessary libraries have been included.
- When you are asked to write *a complete program*, you must write the `#include` statements, the `int main()`, etc. in your solution to receive full credit.
- A line consisting solely of "..." represents one or more unspecified C++ statements, some of which may change the values of program variables.

Problem 1: 25 points.

What is the output of each of the following segments of code?

(a)

```
int a = 2;
cout << a;
```

(b)

```
int a = 2;
cout << "a";
```

(c)

```
int a = 2.5;
cout << a;
```

(d)

```
bool b = (5 > 4) && (2 != 0);
cout << b;
```

(e)

```
int a = 99;
cout << a++;
```

(f)

```
if (5 % 4) {
     cout << "Baa!";
}
else {
     cout << "Moo!";
}
```

(g)

```
int x = 1;
do {
     cout << "Woof!";
} while (x > 1);
```

(h)

```
for (int i = 0; i < 2; i++) {
     for (int j = 0; j < 2; j++) {
          cout << i*j << 't';
     }
     cout << endl;
}
```

Problem 2: 25 points.

State whether each segment of code is valid C++. If it is not valid C++, fix it so that it will compile.

(a)

```
int i;
…
if (i = 0) {
     cout << "Neigh!";
}
```

(b)

```
int i;
…
if (i <0 && > -2) {
     cout << "Oink!";
}
```

(c)

```
for (int i=5; i >= 0; i --) {
     cout << "Meow!"
}
```

(d)

```
int i;
…
if (i > 0) {
     cout << "Positive!";
}
else if (i < 0) {
     cout << "Negative!";
}
else (i ==0) {
     cout << "Zero!";
}
```

(e)

```
while (true) {
     cout << "Cocorico!" << endl;
}
// Note to Spanish speakers: Sadly, the upside-down
// "!" is not an ASCII character.
```

Problem 3: 25 points.

Write short snippets of code to accomplish the following tasks:

(a) Input an integer value from the user. If the value is valid, print it out.

(b) Given three integer variables a, b, and c (assume these are already declared and defined), print “Unique!” if no two of them are equal and “Not unique!” otherwise.

(c) Write a function that takes one integer as input and returns an output equal to two times that integer.

(d) Write a snippet of code that calls the function you wrote for part (c) using the number 5 as input, and then prints out the function’s output.

(e) Write the prototype for the function you wrote for part (c).

Problem 4: 25 points.

For this problem, you must write a **complete program** that does the following:

- Computes the sum of the integers between 1 and 1000 inclusive and prints the sum out.
  (Note: please actually add the numbers up rather than using a mathematical shortcut.)

- Computes the product of the numbers between 1 and 2 inclusive, counting in steps of 0.05, and prints the product on a new line.