Programming and Problem Solving
Winter 2018 – CS110-001
Midterm #1 – February 14 @ 12:30 in ED191

Name: _____ Student Number: __ __ __ - __ __ __ - __ __ __

Answer all questions on these pages of the quiz, in the space provided (inside the boxes). There are questions on both sides of this exam paper. You have 50 minutes to complete the exam. You must maintain the confidentiality of your examination; do not provide any opportunity for others to copy your work. Electronic devices are NOT permitted during the exam. Questions about the exam will not be answered during the exam: if something is unclear to you, please document in your answer any assumptions that you've made. There are 5 short answer questions (each worth 2 marks) on this page and 1 programming question (worth 10 marks) on the other side of the page.

Short Answer (5 questions, 2 marks each):

1. If you write a program that compiles without any issues, does that mean your code has no ***errors***? Give 1 example.

2. Write the C++ code needed to output whether the value stored in an integer variable, called `number`, is even or odd.

3. What is printed from the `cout` in the following code snippet?

```
float value = 7.2894513;
cout << static_cast<int>(value * 100) / 10.0 << endl;
```

4. What is the result of the executing the following code snippet?

```
int input_number = 77;
if (input_number = 6);
{
    cout << "input_number is 6" << endl;
}
```

5. Modify the code in Question 4 (above) to test if the least significant digit of `input_number` is 6, and output the result.

Programming Question (10 marks):

Write a correct, thorough, and readable C++ program that takes input of an amount of money in dollars and cents (there are 100 cents in a dollar). Your program should:

- accept input of values greater than 0.00 and less than 5.00
- round cents to 5¢ (nickels) since the 1¢ coin is no longer legal tender in Canada
- output the amount input expressed in terms of coins: $1 (loonies), 25¢ (quarters), 10¢ (dimes), and 5¢ (nickels)

For example, with input of 3.58, output would be: 3 x $1, 2 x 25¢, 1 x 10¢ (format of output not important). Remember the pseudo-code programming process: you will be rewarded for writing pseudo-code even if you do not convert it all to C++ code.