CS180

Test 1 – 13 September 2019

1. State what a data type is, and list the names of two C++ data types
2. Circle all of the following that are void C++ identifier names. Do not consider style, only validity

loopVariable loop\_variable loop-variable 2nd\_base second\_base unsigned Fred PI

1. Provide a full declaration (type and name) for a variable
   1. That will be used to store a count of the number of students in this class
   2. That will be used to store the Missouri State minimum wage, which is currently $8.60
2. If the following lines of code were run five times in a row, assuming all necessary libraries etc. were loaded, show the output of this might produce.

srand(static\_cast<unsigned>(time(nullptr)));

unsigned value = rand() % 6 + 5;

cout << value << endl;

1. Given the following declarations:

double inside\_temperature;

double outside\_temperature;

Write C++ code to prompt the user and then read values into these variables. Be very precise and make it clear where the spaces are in your code. You do not need to write an entire program, just the statements to print the prompt and read in the values.

1. Write C++ code to calculate the average of the two variables in problem 5 and print it to the screen using regular decimal notation with two digits to the right of the decimal point.
2. Given the initializations:

unsigned number1 = 47;

unsigned number2 = 10;

double number3 = 47.0;

double number4 = 10.0;

show the exact value of each of the following expressions:

1. number1 / number2
2. number1 / number4
3. number1 % number2
4. number3 + number4
5. Suppose that x currently has the value 5 and y has the value 4. What is the value of x after the following statements execute? Show your work.
6. The formula for the surface area of a cube is a = 6s ² ,where is the length of a side. Write a well-written and well-styled C++ program that prompts the user for the measured length of a cube’s side. Reads that value in, and prints out the area of the cube rounded to the nearest hundredth of a unit. Use only techniques we have studied in class. Here is the beginning and you write the rest.

//Calculate the surface area of a cube, given the length of a side

#include <iomanip>

#include <iostream>

using namespace std;

int main()

{