CS180

Test2 – 9 October 2019

1. Indicate the value of each expression:
   1. 5 > 6 ? ‘a’ : ‘b’
   2. Given the initializations:

string feline = “cat”;

string canine = “DOG”;

the expression: feline < canine

* 1. (3 < 7 || 5 != 5) && 1.2 < 3.4

1. Assuming that x and y are variables declared and initialized as doubles, write the fragment of code that you would use to determine whether they are equal.
2. Write the code for a data validation loop that reads a value for the variable student\_count from the keyboard until the value is in the range MIN\_COUNT to MAX\_COUNT inclusive. Assume the following declarations have already been made:

const unsigned MIN\_COUNT = 0;

const unsigned MAX\_COUNT = 30;

unsigned student\_count;

1. A file name data.txt exists on disk that continue exactly 100 integers. Write a fragment of C++ code that declares necessary variables and constants, reads the numbers from the file. And finds the smallest and largest values. Print the smallest and largest to the screen after all of the numbers have been read.
2. The prototype of a C++ functions that accepts a measured Fahrenheit temperature as a parameter and calculates the equivalent Celsius temperature is shown below. Write the Javadoc for this function

double convert\_farenheit\_to\_celsius(double f\_temperature);

1. State the fundamental difference between the while loop and the do-while loop structure, and briefly explain how this affects the operation and use of the two structures
2. In the most recent lab 7 program, we used one for loop and one while loop. Briefly explain why each was used as it was. In other words, explain what feature of the program made the while loop appropriate for its use, and the for loop appropriate for its use.
3. Assume that in a program, the unsigned variable speed has a value that indicates the speed at which a vehicle is traveling, the Boolean variable prior\_ticket has a value that indicates whether the driver has previously received a speeding ticket, and the unsigned constant LIMIT is the current speed limit. Write a fragment of code that determines and displays on the screen the fine the driver receives in a radar trap, based on the following rules.

If the speed is less than or qual to the limit, the fine is zero, If the speed is greater than the limit, the fine is $3.5 for each mile per hour over the limit. In addition, if the driver has a previous ticket and is speeding, an extra penalty of $50 is added to the fine