Name: (as it would appear on official course roster)
UCSB email address: **@ucsb.edu**
Lab Section Time:
Optional: name you wish to be called if different from above
Optional: name of "homework buddy" (leaving this blank signifies "I worked alone")

Homework 01: Introduction to C++

Assigned: *Tuesday, October 6th, 2020*
Due: *Monday, October 12th, 2020 by 11:59 PM*
Points: *100*

- You may collaborate on this homework with AT MOST one person, an optional "homework buddy".
- MAY ONLY BE TURNED IN ON **GRADESCOPE as a PDF file**. Instructions on How to Submit (applicable to ALL homework assignments in this class) are on Piazza.
- There is NO MAKEUP for missed assignments.
- We are strict about enforcing the LATE POLICY for all assignments (see syllabus).

Only use the space provided for answers. Use clear and clean handwriting (or typing).

Reading: Read Chapter 1 (with a special focus on pages 18-32), Chapter 2 (sections 2.1 thru 2.3).

1. (5 pts) Not including any comments that may appear, what are the first two lines that typically begin a C++?

2. (5 pts) What line is a recommended way to end a C++ program?

3. (15 pts) The textbook author describes the difference between "**syntax errors**" and "**logic errors**", and also the difference between syntax errors that produce an "**error message**" vs. those that produce a "**warning message**". Briefly explain each of the items below in a way that makes the DIFFERENCES among them clear:

    a. (5 pts) Syntax errors that result in an *error* message:

    b. (5 pts) Syntax errors that result in a *warning* message:

    c. (5 pts) Logic errors:

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4. (5 pts) Assuming the variable **`age`** has already been declared as **`int age;`** what single line of code will read in a value for **`age`** from the user?

5. (10 pts) Assuming the variable **`balance`** has already been declared as **`int balance;`** write two lines of code that will ask (prompt) the user for a value for **`balance`**, and then read in the value of **`balance`**.

6. (5 pts) The textbook describes **C++11** on p.27. Briefly, what is C++11? (A one sentence answer is good enough. Note that if your textbook does not describe C++11 on p. 27, then you may have the wrong edition. You need the 10th edition.)

7. (10 pts) What are the five main components of a computer according to the Von Neumann model?

8. (5 pts) In one sentence, tell me what is the role of a *compiler*?

9. (5 pts) What is *object code* (and how is it different from C++ code)?

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10. (10 pts) If the following statement were in a C++ program, what would it do?

```
cout >> "An apple a day";
```

11. (10 pts) If the following statement were in a C++ program, what would it do?

```
cout << "Keeps the doctor away";
```

12. (15 pts) Complete this C++ program (as indicated by the comments) designed to calculate the area and the circumference of a circle. The program gets the diameter parameter from the program user and then prints out statements that say:

The area of this circle is: ***some number here***
The circumference of this circle is: ***some number here***

Use the C++ **const** keyword to declare a value for pi (π).

```
#include <iostream>
using namespace std;
int main()
{
   // declare the variables here



   // calculate variables here



   // print statements here



} //end program
```