**Take Home: Quiz 5 (15 pts) – C++ and OOP**

Using Canvas <https://canvas.wsu.edu/>, please submit your solution to the correct quiz folder. Your solution should be a .pdf file with the name <your last name>\_quiz5.pdf and uploaded. To upload your solution, please navigate to your correct Canvas ***lab*** course space. Select the “Assignments” link in the main left menu bar. Navigate to the correct quiz submission folder. Click the “Start Assignment” button. Click the “Upload File” button. Choose the appropriate .pdf file with your solution. Finally, click the “Submit Assignment” button.

**1. (5 pts)** What is a *const* object (3 pts)? What kinds of functions can a const object invoke (2 pts)? Explain.

**A const object is the object with immutable attributes. They are set during construction and cannot be modified later. The const keyword specifies that the object is modifiable.**

**For example: const Rectangle(1.2, 4.5);**

**A const object cannot call non-const member functions., but they can call const member functions. These const member functions cannot modify members of the object**

**For example: double getWidth() const**

**{ return this->mWidth; }**

**2. (5 pts)** In your own words, what is *abstraction*?

* Abstraction is a process of displaying only essential information about the data to the outside world, while the background details are hidden. There are some different types of abstraction, and data abstraction is one of the common types.

Data abstraction is a collection of data that describes a data object. For example, the data abstraction “rectangle”, whose attributes are length and width, or some other important ones.

**3. (5 pts)** In your own words, what is a function *template*?

A function template is a code pattern for creating other similar functions, which is a special function that can operate with generic types. These templates can be created without providing a specific type for variables. When a template is called, the compiler will generate an implementation with the types provided in the call. So this is really useful, we do not need to repeat the entire code for each variable type.