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

**1. (5 pts)** In your own words, what is *information hiding*?

Limiting the scope of certain attributes/methods so that they cannot be accessed directly except through class-approved interfaces. Helps prevent data from being modified in an undesired way, either unintentionally or maliciously. For example, in a linked list there is value in not having the user be able to clear or reset the head pointer. It's neither necessary for them to do so, nor is it safe, and all operations re: the head pointer as nodes are inserted and deleted should be handled by the class.

**3. (5 pts)** In your own words, what is *abstraction*?

The idea that it is not relevant to the end-user how a certain method operates on an object, as long as the method has well-defined and/or expected behavior. For example, if I sort a list by scrambling its contents and then getting my enslaved magical kitties to sort it in O(n\*logn) time, no one outside needs to know as long as the list is sorted with the expected runtime and behavior and with a minimum of mauling.

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

A way to specify a "generic" version of a function that saves the developer the effort of having to write several overloaded functions if they all pretty much do the same thing, just with different data types.