Name: _____

Student ID number: _____

CS 14 – Quiz 1
25 points possible

1. (6pts) Briefly define the following:

   a) Abstract Data Type -

   b) Encapsulation –

   c) Object Oriented Programming (OOP) –

2. (3 pts) What are the three fundamental principles of object-oriented programming?

3. (6 pts) List 3 advantages you have when using a modular design.

4. (4 pts) Given the following code snippet:

```
int* x;
int a = 65;
x = &a;
*x = 1001;
```

Describe what each of these statements will print:

a) cout << x << endl;

b) cout << &x << endl;

c) cout << *x << endl;

d) cout << a << endl;

5. (6 pts) Write a **recursive** function to count the number of times an item appears in a linked list. Your function will return the number of occurrences of the item. Your function should be general in that it would work for any item type. Make sure to use good programming style. (Syntax will be graded).

(2 pts extra credit) Given a list with **multiple** occurrences of the same item, write a **recursive** function to find the **last** occurrence of an item in a linked list and return a pointer to that item. The search will begin at the head (there is no last pointer). Your search function should be general in that it would work for any item type. Make sure to use good programming style. (Syntax will be graded).