

**CS14 – Quiz 1**  
**25 points possible**

1. (1.5 pts) What condition in an application causes an exception to be thrown? (*source - textbook*)

2. (1.5 pts) What two things can happen after an application throws an exception? (*source - textbook*)

3. (3 pts) List 3 benefits of the using a modular design. (*source – lecture slides*)

4. (6 pts) Briefly define the following:  
a) Object oriented programming

b) Encapsulation

c) Abstract data type

5. (2 pts) a) List 2 advantages to using an array implemented list over a pointer implemented list (linked list).

6. (2 pts) List 2 advantages to using a pointer implemented list (linked list) over an array implemented list.

7. (4 pts) Give 2 variations of the basic singly linked list and give 1 advantage for each variation.

5. (5 pts) Write a function to combine two sorted linked lists into one sorted linked list. Your function will take as parameters the two source sorted lists and will return a pointer to the head of the resulting sorted list. Do not destroy the original 2 lists, just create a new list with the same values as in the original 2 source lists. Syntax will be graded. Make sure to use good programming style. You may assume that the following classes exist: (*source – simplification of a homework problem*)

```

class Node {
friend class List;
private:
    Node* next;
    itemtype item;
public:
    Node ( itemtype i ) : next(NULL), item(i) {};
};

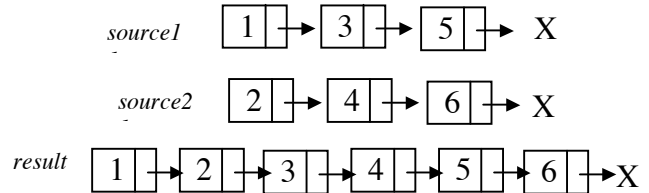
```

```

class List {
public:
    Node* head;
};

```

Example



Write the following function:

```

// Input parameters
//     source1 – first sorted list
//     source2 – second sorted list
// Output
//     function will return a pointer to the head of a list that is sorted and
//     contains all of the values in both the source1 and source2 lists
Node* merge ( Node* source1, Node* source2 ) {

```