CS 2500, Spring 2011 – Programming II
Quiz 4
May 6, 2011

Name: _____

For questions 1-4, please circle the letter of the correct answer.

1. After execution of the following statements, what value does the variable q contain?

```
p = new int;
q = p;
delete p;
p = NULL;
```

   a) the address of p
   b) the address of the deallocated memory cell
   c) the value NULL
   d) q does not point to anything

2. Which of the following will be true when the pointer variable `cur` references the last node in a linear linked list?

   a) `cur == NULL`
   b) `head == NULL`
   c) `cur->next == NULL`
   d) `head->next == NULL`

3. Which of the following statements deletes the node to which `cur` points?

   a) `prev->next = cur;`
   b) `cur->next = prev;`
   c) `cur->next = cur->next;`
   d) `prev->next = cur->next;`

4. Which of the following statements deletes the first node of a linear linked list that has 10 nodes?

   a) `head->next = cur->next;`
   b) `prev->next = cur->next;`
   c) `head = head->next;`
   d) `head = NULL;`

5. What are the three high-level steps to delete a node from a linear linked list?

6. What are the three high-level steps to insert a new node into a linear linked list?

7. Write the code segment that inserts a new node to which `newPtr` points at the beginning of a linear linked list.

8. Write the code segment that inserts into a linear linked list the node to which `newPtr` points between the two nodes pointed to by the variables `prev` and `cur`.

9. Write the code to define a node in a linked list of integers using `struct`.

10. Write a code segment to search a linear linked list for `targetItem`. If the item is found print it, otherwise print "Not found." You may assume the list is nonempty and has a `head` pointer. Also assume that the variable `targetItem` has been declared.

11. What is the difference between a shallow copy and deep copy of a linked list?

12. What are two advantages of using a pointer-based implementation of the ADT list instead of an array-based implementation?