Test 3

Information:
• Monday 11/25, 2:20-3:20 (I will lecture from 2:00-2:20).
• In class, closed book, closed notes, clean desk
• 10% of your final grade
• 60 minutes to complete it:
• Bring your ID card!
• NO: calculators or cell phones.
• NO: headphones/earbuds.

Test format:
100 points total:
• 12 multiple choice questions (4 points each)
• 2 questions: implement some linked list tasks/operations and some stack/queue functions (~26 pts ea)
Probably 4 (or 5) total pages (2 pages front+back)
I’ll have extra paper if you need it for writing the functions.

Content:
These lectures:
• Unit 5: Linked Lists
• Unit 6: Stacks & Queues

Sample questions:

Multiple choice:
1. See squarecap questions.
2. Which C++ statement implements a certain linked list task.
3. Questions about pointers to structures (syntax).
4. Demonstrate push/pop or enqueue/dequeue operations (what is the output or what is left on the stack or in the queue).
5. How do we know when the stack (or queue) is empty for an array (or linked list) implementation.

Sample coding questions:
1. Given the definitions of a Node struct and head pointer, write C++ statements to perform the following tasks:
   a. add a new node with value 10 to the front of the list (it may or may not be empty)
   b. compute the sum of the nodes in the list (it may be of any length)
   c. make p point to the node containing 99 and make n point to the node previous to that node.
2. Given a class declaration for a list implemented using a linked list (like NumberList) implement some of the functions (like the constructor, the destructor, append a node to the end, remove the last node, remove the node in position i, etc).

3. Given the class declaration (from a .h file) for a stack (or queue) implemented as a static array (or linked list), implement the functions from the class declaration (push, pop, enqueue, dequeue, isFull, isEmpty, constructor, destructor).