[CS302-Data Structures] Quiz 9

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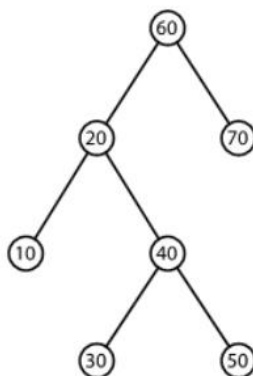
Student First Name _____ **Student Last Name** _____
Student NSHE ID _____ **Student E-mail** _____

Q1: For each of the following situations, which of these ADTs (1 through 6) would be most appropriate? (1) a queue; (2) a stack; (3) a list; (4) a sorted list; (5) a priority queue; (6) none of these. If more than one apply, write one of them.

- The customers at a deli counter who take numbers to mark their turn - 1
- An alphabetic list of names - 4
- Integers that need to be sorted - 3
- The boxes in a box trace of a recursive function - 2
- A grocery list ordered by the occurrence of the items in the store – 3 or 4
- The items on a cash register tape – 1 or 3
- A word processor that allows you to correct typing errors by using the Backspace key - 2
- A program that uses backtracking - 2
- A list of ideas in chronological order – 1, 3, 4 or 5
- Airplanes that stack above a busy airport, waiting to land - 1 or 5
- People who are put on hold when they call for customer service - 1
- An employer who fires the most recently hired person - 2

A1: (WRITE NEXT TO THE LIST ABOVE)

Q2: Represent the following binary tree with an array

A2:

tree

	item	leftChild	rightChild	
0	60	1	2	root: 0
1	20	3	4	
2	70	−1	−1	free: 7
3	10	−1	−1	
4	40	5	6	
5	30	−1	−1	
6	50	−1	−1	
7	?	−1	8	
8	?	−1	9	
⋮	⋮	⋮	⋮	Free list