Time Complexity and Memory Efficiency – 11 points; Suggested work & submission time less than 10min

Submission instructions:

Please submit a single file (use any file name) on TEACH under FinalExamProblem2 before 10:30am. You may write answers by hand and submit a scanned copy. There is no need to copy the questions; just list the question numbers next to your answers.

Answer the following 11 questions. Each correct answer brings 1 point, and incorrect answer le score is 0.

lements:

vill be penalized by -0.5 point to discourage random guessing. The minimum possible	
WI	nat is time complexity of the following operations for data structures with n explanations are structures with n explanations.
1)	AVL Sort algorithm of Bag implemented as a dynamic array?
	Solution:
2)	Add operation of Hash Table with linked lists, when the table size is m ?
	Solution:
3)	Add operation of Sorted Bag implemented as a dynamic array?
	Solution:
4)	Remove operation of Heap implemented as a dynamic array?
	Solution:
5)	Dijkstra's algorithm for a graph with m edges?
	Solution:
6)	Remove operation of AVL tree?
	Solution:
7)	Pop operation of Stack implemented as a static array?
	Solution:

Compare memory efficiency between the following pairs of data structures with the same number n of data elements. For example, comment: Is memory usage the same, or does one data structure take more memory than the other?

8) Deque implemented as a linked list; or Stack implemented as a linked list?

Solution:

9) Hash Table with linked lists and the load factor greater than 1; or Hash Table with linked lists and the load factor less than 1?

Solution:

10) BST; or AVL tree?

Solution:

11) Deque implemented as a dynamic array; or Heap implemented as a dynamic array?

Solution: