DS-1

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Student ID * 1 point

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Given a sequence of number below:50,60,40,70,45,55,30,80,65,35,25,75,85When creating a binary search tree, what is the height of the tree? 1 point

- [ ] 3
- [x] 4
- [ ] 5
- [ ] 6

Clear selection

What are the 3 depth traversals for a tree data structure? 1 point

- (●) Pre-, In- and Post-order
- ( ) Pro-, In- and Past-order
- ( ) Pre-, Out- and Post-order
- ( ) Pre-, In- and New-order

Clear selection

Which of these tree traversal methods is used to output the contents of a binary tree in ascending order? 1 point

- ( ) Pre-Order
- (●) In-Order
- ( ) Post-Order
- ( ) Monastic Orders

Clear selection

Root 1 point

- ( ) data structure similar to a graph, with no loops.
- ( ) an object in a graph also known as a vertex
- ( ) a join of relationship between nodes - also know as an arc
- (●) the starting node in a rooted tree structure from which all other nodes branch off

Clear selection

A Kind of tree where every node in a tree can have at most two children. 1 point

- (●) Binary Tree
- ( ) Binary Expression Tree
- ( ) Tree
- ( ) Binary Search Tree

Clear selection

Which of the following trait of a hash function is most desirable? 1 point

- (●) it should cause less collisions
- ( ) it should cause more collisions
- ( ) it should occupy less space
- ( ) it should be easy to implement

Clear selection

What is the advantage of using a doubly linked list for chaining over singly linked list? 1 point

- ( ) it takes less memory
- ( ) it is easy to implement
- (●) it makes the process of insertion and deletion faster
- ( ) it causes less collisions

Clear selection

What is the worst case search time of a hashing using separate chaining algorithm? 1 point

- ○ O(N log N)
- ◉ O(N)
- ○ O(N^2)
- ○ O(N^3)

Clear selection

Which of the following is not a collision resolution technique? 1 point

- ○ Separate chaining
- ○ Linear probing
- ○ Quadratic probing
- ◉ Hashing

Clear selection

The case in which a key other than the desired one is kept at the identified location is called? 1 point

- ○ Hashing
- ◉ Collision
- ○ Chaining
- ○ Open addressing

Clear selection

What is the load factor? 1 point

- ○ Average array size
- ○ Average key size
- ◉ Average chain length
- ○ Average hash table length

Clear selection

Which data structure uses hashing to store information with constant lookup time? 1 point

- ◉ Hash table
- ○ 1D Array
- ○ Linked List
- ○ 2D Array
- ○ Stack

Clear selection

Advantages of linked list representation of binary trees over arrays? * 1 point

- ○ a) dynamic size
- ○ b) ease of insertion/deletion
- ○ c) ease in randomly accessing a node
- ◉ d) both dynamic size and ease in insertion/deletion

Disadvantages of linked list representation of binary trees over arrays? * 1 point

- a) Randomly accessing is not possible
- b) Extra memory for a pointer is needed with every element in the list
- c) Difficulty in deletion
- d) Random access is not possible and extra memory with every element

A linear collection of data elements where the linear node is given by means of pointer is called? * 1 point

- a) Linked list
- b) Node list
- c) Primitive list
- d) Unordered list

The concatenation of two lists can be performed in O(1) time. Which of the following variation of the linked list can be used? * 1 point

- a) Singly linked list
- b) Doubly linked list
- c) Circular doubly linked list
- d) Array implementation of list

In a stack, if a user tries to remove an element from an empty stack it is called _____ * 1 point

- [x] a) Underflow
- [ ] b) Empty collection
- [ ] c) Overflow
- [ ] d) Garbage Collection

Entries in a stack are “ordered”. What is the meaning of this statement? * 1 point

- [ ] a) A collection of stacks is sortable
- [ ] b) Stack entries may be compared with the ‘<‘ operation
- [ ] c) The entries are stored in a linked list
- [x] d) There is a Sequential entry that is one by one

Which of the following is not the application of stack? * 1 point

- [ ] a) A parentheses balancing program
- [ ] b) Tracking of local variables at run time
- [ ] c) Compiler Syntax Analyzer
- [x] d) Data Transfer between two asynchronous process

Here is an infix expression: 4 + 3*(6*3-12). Suppose that we are using the usual stack algorithm to convert the expression from infix to postfix notation. The maximum number of symbols that will appear on the stack AT ONE TIME during the conversion of this expression? * 1 point

- a) 1
- b) 2
- c) 3
- d) 4 (selected)

What kind of linked list is best to answer questions like “What is the item at position n?” * 1 point

- a) Singly linked list
- b) Doubly linked list
- c) Circular linked list
- d) Array implementation of linked list (selected)

Linked list is considered as an example of _____ type of memory allocation. * 1 point

- a) Dynamic (selected)
- b) Static
- c) Compile time
- d) Heap

In Linked List implementation, a node carries information regarding _____ * 1 point

- a) Data
- b) Link
- c) Data and Link
- d) Node

Linked list data structure offers considerable saving in _____ * 1 point

- a) Computational Time
- b) Space Utilization
- c) Space Utilization and Computational Time
- d) Speed Utilization

Which of the following application makes use of a circular linked list? * 1 point

- a) Undo operation in a text editor
- b) Recursive function calls
- c) Allocating CPU to resources
- d) Implement Hash Tables

Which of the following is false about a circular linked list? * 1 point

- a) Every node has a successor
- b) Time complexity of inserting a new node at the head of the list is O(1)
- c) Time complexity for deleting the last node is O(n)
- d) We can traverse the whole circular linked list by starting from any point

In postorder traversal of binary tree right subtree is traversed before visiting root. * 1 point

- a) True
- b) False

What is the possible number of binary trees that can be created with 3 nodes, giving the sequence N, M, L when traversed in post-order. * 1 point

- a) 15
- b) 3
- c) 5
- d) 8

A binary search tree contains values 7, 8, 13, 26, 35, 40, 70, 75. Which one of the following is a valid post-order sequence of the tree provided the pre-order sequence as 35, 13, 7, 8, 26, 70, 40 and 75? * 1 point

- a) 7, 8, 26, 13, 75, 40, 70, 35
- b) 26, 13, 7, 8, 70, 75, 40, 35
- c) 7, 8, 13, 26, 35, 40, 70, 75
- (●) d) 8, 7, 26, 13, 40, 75, 70, 35

A full binary tree can be generated using _____ * 1 point

- (●) a) post-order and pre-order traversal
- b) pre-order traversal
- c) post-order traversal
- d) in-order traversal

The steps for finding post-order traversal are traverse the right subtree, traverse the left subtree or visit the current node. * 1 point

- a) True
- (●) b) False

The pre-order and in-order are traversals of a binary tree are T M L N P O Q and L M N T O P Q. Which of following is post-order traversal of the tree? * 1 point

- (●) a) L N M O Q P T
- ( ) b) N M O P O L T
- ( ) c) L M N O P Q T
- ( ) d) O P L M N Q T

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