Started on	Sunday, 9 April 2023, 6:07 PM
State	Finished
Completed on	Sunday, 9 April 2023, 6:12 PM
Time taken	4 mins 42 secs
Marks	3.25/8.00
Grade	**4.06** out of 10.00 (**40.63**%)

Question 1

Correct

Mark 1.00 out of 1.00

Select whether the following statement is True/False.

Binary Search is appropriate for linked lists

Select one:

- True
- False ✔

The correct answer is 'False'.

Question 2

Incorrect

Mark 0.00 out of 1.00

The number of possible binary trees with 4 nodes is

Answer: 14 ✖

Explanation

Refer to https://www.geeksforgeeks.org/total-number-of-possible-binary-search-trees-with-n-keys/. There is also a Python/ C++ code available at this link.

Also refer to Catalan Numbers @ https://en.wikipedia.org/wiki/Catalan_number

The correct answer is: 336

Question 3

Incorrect

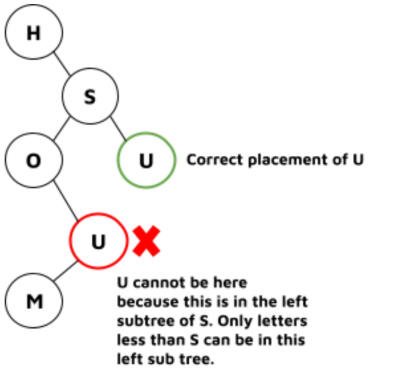
Mark 0.00 out of 1.00

Consider the following search probe sequences in a binary search tree. Which of these sequences is/are **not valid** ? (priority is given according to order of letters in the alphabet, i.e. B has higher priority than A, C has priority than B and so on)

Select one or more:

- a. H, S, O, U, M
- b. H, S, O, M, N ✖
- c. T, Y, X, U
- d. I, F, E, C, D ✖

Your answer is incorrect.



The correct answer is:
H, S, O, U, M

Question 4

Correct

Mark 1.00 out of 1.00

What is the number of nodes at depth d in a k-ary Tree?

- a. $d\,!$
- b. d^k
- c. k^d ✔
- d. kd

The correct answer is: k^d

Question 5

Incorrect

Mark 0.00 out of 1.00

Consider numbers 3, 9, 1, 17, 14, 22, 20. These numbers are inserted in to a balanced binary tree, Which tree traversal method would output the following sequence.

14, 3, 1, 9, 20, 17, 22

a. Preorder

b. Postorder

c. Non of the above

d. Inorder ✖

The correct answer is: Preorder

Question 6

Correct

Mark 1.00 out of 1.00

Which of the following tree traversal algorithm print out all the keys in a binary search tree in sorted order?

a. Pre-order traversal

b. Post-order traversal

c. In-order traversal ✔

d. It depends on whether the binary tree is height-balanced or not.

The correct answer is: In-order traversal

Question 7

Incorrect

Mark 0.00 out of 1.00

By which Factor does the Binary Search Narrows the Search?

a. Two (2) times at each search operation ✖

b. Does not narrow the search by any factor

c. Two (2) times at each iteration

d. Four (4) times at each iteration

The correct answer is: Two (2) times at each iteration

Question 8

Partially correct

Mark 0.25 out of 1.00

Following is a pseudo code to check given two Binary Trees are identical or not.

```
// Data structure for binary tree
class Node{
    int key;
    Node left, right;
}

//Algorithm
int isEqual(Node a, Node b)
{
    if ( Condition 1 )
        return true;

    return ( Condition 2 ) &&
            ( Condition 3 ) &&
            isEqual( a.left, b.left ) &&
            isEqual( Condition 4 );
}
```

select correct conditions for appropriate places.

Condition 4	x == null && y == null	✗
Condition 3	a != null && b!=null	✗
Condition 1	a.right, b.right	✗
Condition 2	a != null && b!=null	✓

The correct answer is: Condition 4 → a.right, b.right, Condition 3 → a.key == b.key, Condition 1 → x == null && y == null, Condition 2 → a != null && b!=null