

SECTIONS

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CSCI 2270 - Gupta, Trivedi, Zagrodzki - CS2: Data Structures

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Started on	Monday, 11 March 2019, 4:14 PM
State	Finished
Completed on	Monday, 11 March 2019, 4:37 PM
Time taken	23 mins 41 secs
Grade	8.44 out of 10.00 (84%)

Question 1

Correct

Mark 1.25 out of 1.25

What is the depth of node X in the following tree? (Write a number without leading spaces)

```
      K
     / | \
    M  R  T
    |  |  \
    Q  Y  X
```

Answer:

2

✓

Question 2

Correct

Mark 1.25 out of 1.25

Consider the following BST:

```
      C
     / \
    B   K
   / \  / \
  A  E E  M
      / \
     L  N
```

Choose correct inorder traversal for the tree after deleting node K from the tree. Consider lexicographical sorting among the letters.

Select one:

☒ a. ABCELMN

☐ b. ABENMLC

☐ c. None of these

☐ d. ABCLEMN

☐ e. CBALEMN

Your answer is correct.

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Correct

Mark 1.25 out of 1.25

Question 4

Correct

Mark 1.25 out of 1.25

Question 5

Partially correct

Mark 0.94 out of 1.25

O(n) and the BST has the same runtime properties as a linked list. When the tree is balanced, the distance from the root to any leaf node at the bottom of the tree, is log(n), where n is the number of nodes in the tree. Hence the complexity to search in a balanced binary tree is _____.

Select one:

☐ a. None of these

☐ b. O(n)

☒ c. O(log n)

☐ d. O(n^2)

☐ e. O(2^n)

Your answer is correct.

Suppose the numbers 7, 5, 1, 8, 3, 6, 0, 9, 4, 2 are inserted in that order into an initially empty binary search tree. The binary search tree uses the usual ordering on natural numbers. What is the in-order traversal sequence of the resultant tree?

Select one:

☐ a. 9 8 6 4 2 3 0 1 5 7

☐ b. 7 5 1 0 3 2 4 6 8 9

☒ c. 0 1 2 3 4 5 6 7 8 9

☐ d. 0 2 4 3 1 6 5 9 8 7

Your answer is correct.

Which of the following may be the inorder traversal of a BST? Select all that apply.

Select one or more:

☒ a. 1,7,11,22,25,31,46

☐ b. None of them

☒ c. 2,6,10,15,30,55,80

☐ d. 30,22,17,14,9,6,0

☐ e. All of them

☒ f. 2, 6, 5, 11,13,22,34

Your answer is partially correct.

You have selected too many options.

https://moodle.cs.colorado.edu/mod/quiz/review.php?attempt=414920&cmid=35693

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Correct

Mark 1.25 out of 1.25

Question 7

Correct

Mark 1.25 out of 1.25

Select one or more:

☒ a. If a recursive function is named 'getSum' then there is a call to getSum inside the getSum function

☐ b. Have an integer return value

☐ c. Maintain the index of the phase in the recursion

☒ d. Have a base case

Your answer is correct.

```
void fun(int n){
    if(n > 0) {
        fun(n-1);
        printf("%d ", n);
        fun(n-1);
    }
    else
        return;
}
int main(){
    fun(3);
    return 0;
}
```

What will be the output of the program? (Use a single space between numbers)

Answer: 1 2 1 3 1 2 1

Incorrect

Mark 0.00 out of 1.25

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```
int findSum(TreeNode * root, int depth)
{
    if(root != NULL)
    {
        int rightSum = findSum(root->right, depth + 1);

        int leftSum = findSum(root->left, depth + 1);

        cout << root->key;

        if (depth != 0)
        {
            cout << " ";

        }

        return rightSum + leftSum + root->key;
    }
    else
        return 0;
}
```

Consider following binary search tree:

```
      19
     /  \
    17   21
   /
  14
 /  \
7    15
 \
 12
```

The following code is called:

```
findSum(root, 0);
```

Root is a pointer to the TreeNode whose key is 19. What is the output from cout? There is a **single space** between values that are printed to the terminal. Note, there are no intended errors in the code.

21 15 12 7 14 17 19105

✖

Your answer is incorrect.

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