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

Started on	Sunday, 1 March 2020, 4:42 PM
State	Finished
Completed on	Sunday, 1 March 2020, 4:52 PM
Time taken	10 mins 37 secs
Grade	**8.11** out of 10.00 (**81**%)

Question **1**

Partially correct

Mark 0.50 out of 1.00

Given:
Stack size =4

Perform the following sequence of operations on the stack and **stop executing commands once the stack is full.** Display the final contents of the stack from **top to bottom** separated by a space.

1. push(-90)
2. push(34)
3. pop()
4. push(-74)
5. push(0)
6. pop()
7. pop()
8. pop()
9. push(23)
10. push(87)
11. push(100)
12. pop()
13. push(45)
14. push(12)
15. push(-999)

Answer: 23 87 45 12

The correct answer is: 12 45 87 23

Question **2**

Partially correct

Mark 0.44 out of 1.00

Using the following code for an empty circular array-based queue, complete the questions below: (Assume **Dequeue()** operation will insert **-1** into corresponding place)

```
Enqueue(6)
Enqueue(12)
Dequeue( )
Dequeue( )
Enqueue(10)
Dequeue( )
Enqueue(15)
Enqueue(21)
```

What value does the First dequeue remove from the queue?

6 ✔

What value does the Second dequeue remove from the queue?

121 ✖

What value does the Third dequeue remove from the queue?

10 ✔

Display the final values in the queue: if there isn't a number in one of the positions, put in a -1.

For example, if there's nothing in Q[i], Q[i] = -1

	0	1	2	3	4	5
Q	15 ✖	21 ✖	-1 ✔	-1 ✖	-1 ✖	-1 ✔

Your answer is partially correct.

4 of your answers are correct.

Question **3**

Partially correct

Mark 0.17 out of 1.00

Consider a *Circular Array-Based Queue*, which of the following statements are correct?

Select one or more:

- [x] The time complexity of **insertion** is O(1); ✔
- [ ] The index of **head** can be **smaller** than the idex of tail;
- [x] The index of **head** can be equal to the idex of **tail**; ✔
- [ ] The index of **head** cannot be larger than the idex of **tail**;
- [x] The time complexity of **deletion** is O(n); ✖

Your answer is partially correct.

You have correctly selected 2.
The correct answers are: The index of **head** can be equal to the idex of **tail**;, The time complexity of **insertion** is O(1);, The index of **head** can be **smaller** than the idex of tail;

Question **4**

Correct

Mark 1.00 out of 1.00

Given the following tree, which nodes are leaf nodes? *Select all that apply!*

Select one or more:

- [ ] a. X
- [x] b. Y ✔
- [ ] c. T
- [ ] d. R
- [x] e. Q ✔
- [x] f. K ✔
- [x] g. M ✔

Your answer is correct.

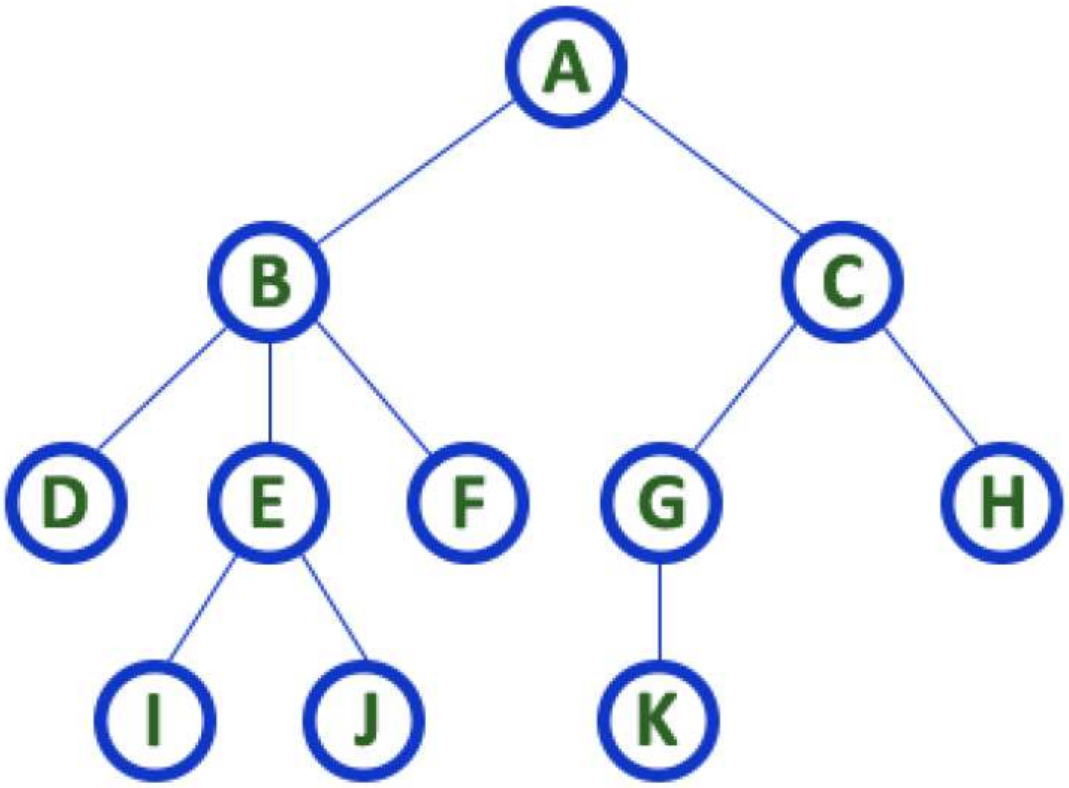
The correct answers are: K, M, Q, Y

Question **5**

Correct

Mark 1.00 out of 1.00

Which of the following is true based on the following tree?



Select one or more:

- [ ] node H is a sibling of node K
- [x] node D is a sibling of node E ✔
- [ ] node G is a uncle of node J
- [x] node F is a uncle of node I ✔
- [x] node F is a sibling of node D ✔

Your answer is correct.

The correct answers are: node D is a sibling of node E, node F is a sibling of node D, node F is a uncle of node I

Question **6**

Correct

Mark 1.00 out of 1.00

The given tree is a binary search tree. What number should be put at A in order to preserve the BST properties?

Select one or more:

- [ ] a. 27
- [x] b. 16 ✖
- [ ] c. 22
- [x] d. 25 ✖
- [ ] e. 14

Your answer is correct.

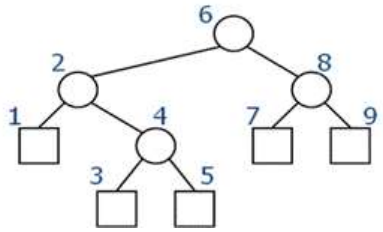
The correct answer is: 22

Question **7**

Correct

Mark 1.00 out of 1.00

The post order traversal of the following tree is



Select one:

- 1, 3, 5, 4, 2, 7, 9, 8, 6 ✔
- 6, 2, 1, 4, 3, 5, 8, 7, 9
- 1, 2, 3, 4, 5, 6, 7, 8, 9
- 6, 2, 8, 1, 4, 7, 9, 3, 5

Your answer is correct.

The correct answer is: 1, 3, 5, 4, 2, 7, 9, 8, 6

Question **8**

Correct

Mark 1.00 out of 1.00

The inorder traversal of the following tree is:

Select one:

- 2, 5, 4, 9, 11, 14, 13, 10, 6
- 2, 4, 5, 6, 9, 10, 11, 13, 14 ✔
- 6, 4, 2, 5, 10, 9, 13, 11, 14
- None of them

Your answer is correct.

The correct answer is: 2, 4, 5, 6, 9, 10, 11, 13, 14

Question **9**

Correct

Mark 1.00 out of 1.00

Given the function below, write the output (from cout) of this function.

```
int myFunc(int n)
{
    int result = 0;
    if (n <= 0)
        return 1;
    result = n * myFunc(n-2);
    return result;
}
int main( )
{
    cout << myFunc(7);
    return 0;
}
```

Answer: 105 ✔

The correct answer is: 105

Question **10**

Correct

Mark 1.00 out of 1.00

what data structure does system use to keep track of recursion?

Select one:

- Tree
- Linked list
- Queue
- Stack ✔

Your answer is correct.

The correct answer is: Stack