


DSA_Quiz-2_2/3/2021

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1. Following is C like pseudo code of a function that takes a Stack as an argument, and uses a Queue Q to do processing.

```
void fun(Stack *S)
{
    Queue Q; // Say it creates an empty Queue Q
    while (!isEmpty(S))
    {
        // pop an item from S and enqueue the popped item to Q
        Enqueue(&Q, pop(S));
    }
    // Run while Queue Q is not empty
    while (!isEmpty(&Q))
    {
        // dequeue an item from Q and push the dequeued item to S
        push(S, dequeue(&Q));
    }
}
```

What does the above function do in general? 
(2 Points)

- ☐ Removes the last from S
- ☐ Keeps the S same as it was before the call
- ☐ Makes S empty
- ☐ Reverses the S

2. Which of the following permutations can be obtained in the output (in the same order) using a stack assuming that the input is the sequence 10, 20, 30, 44, 45 in that order? (1 Point)

- ☐ 30, 44, 45, 10, 20
- ☐ 30, 44, 45, 20, 10
- ☐ 45, 44, 30, 10, 20
- ☐ 10, 45, 20, 30, 44

3. To implement stack using singly linked list, which of the scenarios are true? (1 Point)

- ☐ Insert from First, Delete from First
- ☐ Insert from last, Delete from First
- ☐ Insert from last, Delete from Last
- ☐ Insert from First, Delete from last

4. Consider the following operations on Circular Queue of size 5.

(i)Insert 12,23,45,67(ii)Delete(iii)Insert 13(iv)Delete(v)Delete(vi)Insert 40(vii)Insert 50
What are the values of rear and front variables?

(2 Points)

- ☐ 1,4
- ☐ 2,5
- ☐ 0,5
- ☐ 1,5

5. An array of size A is used to implement a circular queue. Front, Rear, and count are tracked. Suppose front is 0 and rear is $A - 1$. How many elements are present in the queue?

(1 Point)

☐ A

☐ $A-1$

☐ 0

☐ 1

6. Consider the scenario where a resource is shared among multiple consumers. Which data structure can be used to grant access to resource in a fair manner?

(1 Point)

☐ Stack

☐ Queue

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