

Question 1

Complete

Marked out of 1.00

 Flag question

You are given a stack named **myStack**. Initially, it's empty. You perform the following sequence of operations:

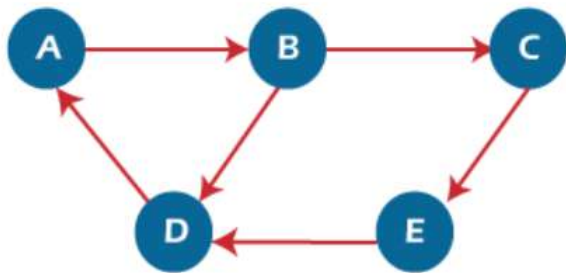
1. Push the values 3, 5, 2, and 7 onto myStack (in this order).
2. Pop the top element from myStack.
3. Push the values 1, 8, and 4 onto myStack (in this order).
4. Pop the top two elements from myStack.
5. Push the values 9 and 6 onto myStack (in this order).

After performing these operations, what is the content of **myStack** from **top** to **bottom**?

Select one:

- ☐ a. 3, 5, 2, 1, 9, 6
- ☐ b. 6, 9, 4, 7, 2, 5
- ☐ c. 5, 2, 7, 4, 9, 6
- ☒ d. 6, 9, 1, 2, 5, 3

Represent the following graph using the adjacency graph representation technique. What will the row value for node B? Choose the correct answer.




Select one:

- ☐ a. 0 0 0 1 1
- ☐ b. 1 0 1 0 0
- ☐ c. 0 0 1 0 1
- ☒ d. 0 0 1 1 0

Question 3

Complete

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A priority queue is implemented as a Max-Heap. Initially, it has 5 elements. The level-order traversal of the heap is 10, 8, 5, 3, 2. Two new elements 1 and 7 are inserted into the heap in that order. The level-order traversal of the heap after the insertion of the elements is:

- A. 10, 8, 7, 5, 3, 2, 1
- B. 10, 8, 7, 2, 3, 1, 5
- C. 10, 8, 7, 1, 2, 3, 5
- D. 10, 8, 7, 3, 2, 1, 5


Select one:

- ☒ a. D
- ☐ b. C
- ☐ c. A
- ☐ d. B

Question 4

Complete

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 Flag question

Which of the following is NOT a common operation in a queue data structure?

Select one:

- ☐ a. Enqueue
- ☒ b. Shuffle
- ☐ c. Front
- ☐ d. Dequeue

Question 5

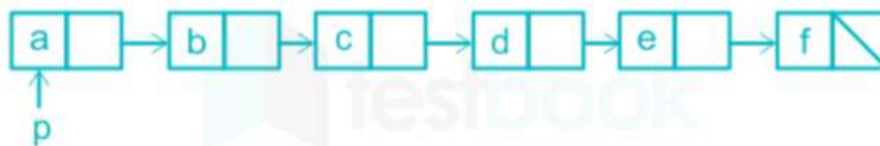
Complete

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Flag question

Assume that p and q are pointers. What will be the output after performing the following sets of operations on a given linked list?

```
struct node{  
char data;  
struct node *next;  
};
```

**Operations are**

- I. $q = p \rightarrow \text{next} \rightarrow \text{next};$
- II. $p \rightarrow \text{next} \rightarrow \text{next} = q \rightarrow \text{next} \rightarrow \text{next};$
- III. $q \rightarrow \text{next} \rightarrow \text{next} \rightarrow \text{next} \rightarrow \text{next} = q \rightarrow \text{next};$
- IV. $\text{printf}(\text{"\%c"}, p \rightarrow \text{next} \rightarrow \text{next} \rightarrow \text{next} \rightarrow \text{next} \rightarrow \text{data});$

Select one:

- ☐ a. segmentation fault
- ☐ b. d
- ☒ c. e
- ☐ d. error

Question 6

Complete

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Flag question

Which one of the following hash functions on integers will distribute keys most uniformly over 10 buckets numbered 0 to 9 for i ranging from 0 to 2020?


Select one:

- ☐ a. $h(i) = (12 * i) \bmod 10$
- ☐ b. $h(i) = i^2 \bmod 10$
- ☒ c. $h(i) = i^3 \bmod 10$
- ☐ d. $h(i) = (11 * i^2) \bmod 10$

Question 7

Complete

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A B-tree of order 4 and of height 3 will have a maximum of keys.

Select one:

- ☐ a. 7
- ☐ b. 14
- ☐ c. 5
- ☒ d. 255

Question 8

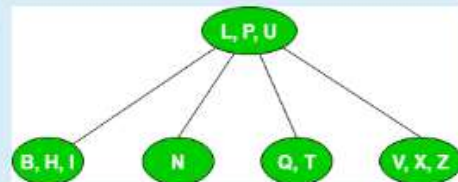
Complete

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Consider the following 2-3-4 tree (i.e., B-tree with a minimum degree of two) in which each data item is a letter. The usual alphabetical ordering of letters is used in constructing the tree.

The usual alphabetical ordering of letters is used in constructing the tree.



What is the result of inserting G in the above tree?

Select one:

- ☐ a.
-
- ```

graph TD
 Root["P"] --- Child1["H, L"]
 Root --- Child2["U"]
 Child1 --- GrandChild1["B, G"]
 Child1 --- GrandChild2["I"]
 Child1 --- GrandChild3["N"]
 Child2 --- GrandChild4["Q, T"]
 Child2 --- GrandChild5["V, X, Z"]

```
- ☒ b.
- 
- ```

graph TD
    Root["I, P, U"] --- Child1["B, G, H"]
    Root --- Child2["L, N"]
    Root --- Child3["Q, T"]
    Root --- Child4["V, X, Z"]
  
```
- ☐ c.
-
- ```

graph TD
 Root["H, L, P, U"] --- Child1["B, G"]
 Root --- Child2["I"]
 Root --- Child3["N"]
 Root --- Child4["Q, T"]
 Root --- Child5["V, X, Z"]

```
- ☐ d.
- 
- ```

graph TD
    Root["P"] --- Child1["G, L"]
    Root --- Child2["U"]
    Child1 --- GrandChild1["B"]
    Child1 --- GrandChild2["H, I"]
    Child1 --- GrandChild3["N"]
    Child2 --- GrandChild4["Q, T"]
    Child2 --- GrandChild5["V, X, Z"]
  
```

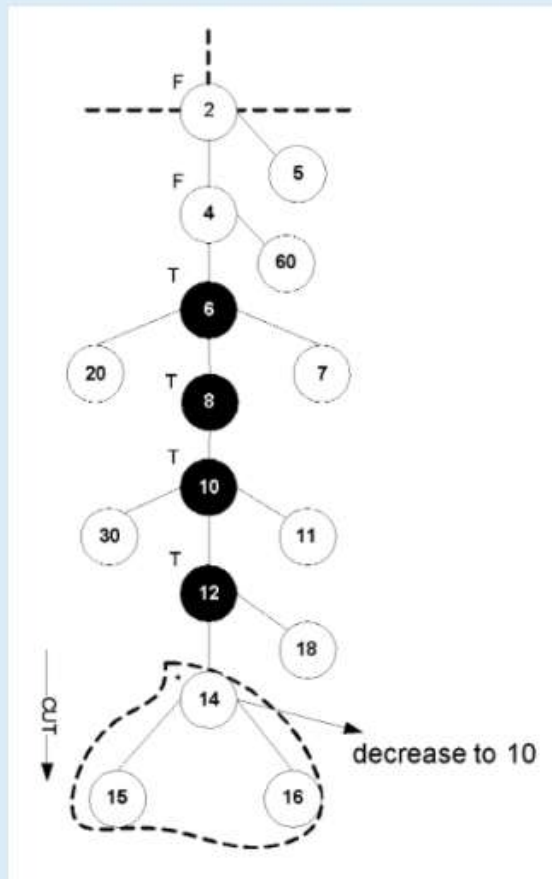

Question 9

Complete

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with decrease key operation on given Fibonacci heap, Total number of cuts will be-----



Select one:

- ☒ a. 5
- ☐ b. 3
- ☐ c. 4
- ☐ d. none of the above

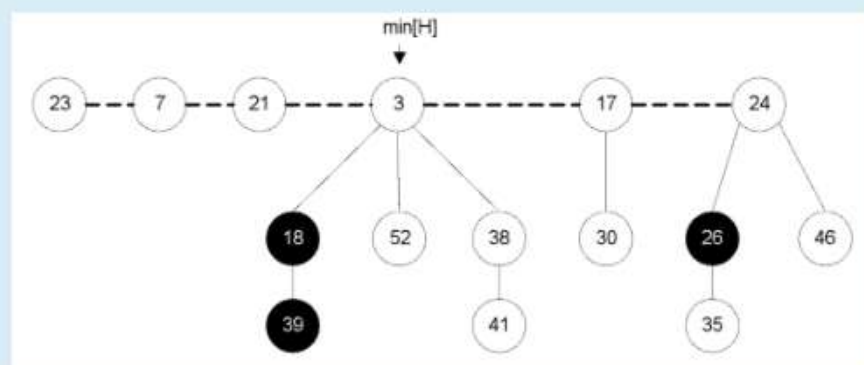
Question 10

Complete

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Potential function of given Fibonacci heap is:



Select one:

- ☐ a. none
- ☒ b. 12
- ☐ c. 15
- ☐ d. 6