

6 Lecture - CS301

Important Mcqs

1. **Which of the following is NOT a characteristic of a stack?**
- a. Follows LIFO principle
 - b. Has two main operations: push and pop
 - c. Can only be implemented using arrays
 - d. Topmost element is the last one added

Answer: c. Can only be implemented using arrays

2. **What is the time complexity of push and pop operations in a stack implemented using an array?**
- a. $O(1)$
 - b. $O(\log n)$
 - c. $O(n)$
 - d. $O(n^2)$

Answer: a. $O(1)$

3. **Which data structure is often used to implement a stack?**
- a. Array
 - b. Linked List
 - c. Queue
 - d. Binary Tree

Answer: b. Linked List

4. **Which of the following is NOT a common application of stacks?**
- a. Reversing a string
 - b. Evaluating postfix expressions
 - c. Implementing depth-first search in a graph
 - d. Sorting an array

Answer: d. Sorting an array

5. **Which operation in a stack does not modify the stack?**
- a. Push
 - b. Pop
 - c. Peek
 - d. Size

Answer: c. Peek

6. **What happens when we try to pop an element from an empty stack?**
- a. The program crashes

- b. An error message is displayed
- c. The topmost element becomes NULL
- d. Nothing happens

Answer: b. An error message is displayed

7. Which of the following is NOT a disadvantage of using an array to implement a stack?
- a. Fixed size
 - b. Elements must be contiguous in memory
 - c. Dynamic resizing is difficult
 - d. Push operation is slower than pop operation

Answer: d. Push operation is slower than pop operation

8. What is the maximum number of elements a stack implemented using an array can hold if its size is n?
- a. n
 - b. n-1
 - c. 2n
 - d. 2n-1

Answer: b. n-1

9. Which of the following is NOT a potential application of stacks in computer science?
- a. Function calls and return values
 - b. Undo and redo operations
 - c. Implementing breadth-first search in a graph
 - d. Checking for balanced parentheses in an expression

Answer: c. Implementing breadth-first search in a graph

10. What is the time complexity of searching for an element in a stack implemented using a linked list?
- a. $O(1)$
 - b. $O(\log n)$
 - c. $O(n)$
 - d. $O(n^2)$

Answer: c. $O(n)$