

## Theory Assignment 02

Marks

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- Between array based stack implementation and linked-list based stack implementation which is better when I need random access in the stack? Explain the reasons. 15

- What is the time complexity of push, pop and top operations in a stack? 10

- Suppose you need a stack of characters, a stack of integers and a stack of real numbers. How will you implement this scenario using a single stack? 15

- What is a postfix expression and why do we need it? How is it evaluated using a stack for the below example? You need to show all the steps. 15

$abc^*+de^*+$

- Simulate balanced parentheses check using stack for the below example. You need to show all the steps. 15

$(([]{}))$

- Sort a stack of integers using another stack for the below example. You need to show all the steps. 15

Stack -> [3,4,6,2,5]

- Convert the infix expression to postfix expression using a stack. You need to show all the steps. 15

$a+b*c+d*e$