

**Chapter 3  
Stack**

1. Process of inserting an element in stack is called \_\_\_\_\_  
a) Create  
b) **Push**  
c) Evaluation  
d) Pop
  
2. Process of removing an element from stack is called \_\_\_\_\_  
a) Create  
b) Push  
c) Evaluation  
d) **Pop**
  
3. In a stack, if a user tries to remove an element from an empty stack it is called \_\_\_\_\_  
a) **Underflow**  
b) Empty collection  
c) Overflow  
d) Garbage Collection
  
4. Pushing an element into stack already having five elements and stack size of 5, then stack becomes \_\_\_\_\_  
a) **Overflow**  
b) Crash  
c) Underflow  
d) User flow
  
5. Entries in a stack are “ordered”. What is the meaning of this statement?  
a) A collection of stacks is sortable  
b) Stack entries may be compared with the ‘<’ operation  
c) The entries are stored in a linked list  
d) **There is a Sequential entry that is one by one**
  
6. What is the value of the postfix expression  $6\ 3\ 2\ 4\ +\ -\ *?$   
a) 1  
b) 40  
c) 74  
d) **-18**
  
7. Here is an infix expression:  $4 + 3 * (6 * 3 - 12)$ . Suppose that we are using the usual stack algorithm to convert the expression from infix to postfix notation. The maximum number of symbols that will appear on the stack AT ONE TIME during the conversion of this expression?  
a) 1  
b) 2  
c) 3  
d) **4**
  
8. The postfix form of the expression  $(A + B)^*(C * D - E)^*F / G$  is?  
a)  $AB + CD^*E - FG / **$   
b)  $AB + CD^* E - F **G /$   
c)  **$AB + CD^* E - *F *G /$**

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d) AB + CDE \* - \* F \*G /

9. The data structure required to check whether an expression contains a balanced parenthesis is?

- a) **Stack**
- b) Queue
- c) Array
- d) Tree

10. The process of accessing data stored in a serial access memory is similar to manipulating data on a \_\_\_\_\_

- a) Heap
- b) Binary Tree
- c) Array
- d) **Stack**

11. The postfix form of A\*B+C/D is?

- a) \*AB/CD+
- b) AB\*CD/+**
- c) A\*BC+/D
- d) ABCD+/\*

12. Which data structure is needed to convert infix notation to postfix notation?

- a) Branch
- b) Tree
- c) Queue
- d) **Stack**

13. The prefix form of A-B/ (C \* D ^ E) is?

- a) -/\*^ACBDE
- b) -ABCD\*^DE
- c) -A/B\*C^DE**
- d) -A/BC\*^DE

14. What is the result of the following operation?

Top (Push (S, X))

- a) X**
- b) X+S
- c) S
- d) XS

15. The prefix form of an infix expression  $(p + q) - (r * t)$  is?

- a) + pq - \*rt
- b) - +pqr \* t
- c) - +pq \* rt**
- d) - + \* pqrt

16. The result of evaluating the postfix expression 5, 4, 6, +, \*, 4, 9, 3, /, +, \* is?

- a) 600
- b) 350**
- c) 650
- d) 588

17. Convert the following infix expressions into its equivalent postfix expressions.

- (A + B  $\wedge$ D)/(E – F)+G  
a) (A B D  $\wedge$  E F – / G +)  
b) (A B D + $\wedge$  E F – / G +)  
c) (A B D  $\wedge$  E F/- G +)  
d) (A B D E F +  $\wedge$  / – G +)

18. Convert the following Infix expression to Postfix form using a stack.

$x + y * z + (p * q + r) * s$ , Follow usual precedence rule and assume that the expression is legal.

- a) xyz\*+pq\*r+s\*+  
b) xyz\*+pq\*r+s+\*  
c) xyz+\*pq\*r+s\*+  
d) xyzp+\*\*qr+s\*+

19. Which of the following statement(s) about stack data structure is/are NOT correct?

- a) Linked List are used for implementing Stacks  
b) Top of the Stack always contain the new node  
c) **Stack is the FIFO data structure**  
d) Null link is present in the last node at the bottom of the stack

Consider the following operation performed on a stack of size 5.

```
Push(1);  
Pop();  
Push(2);  
Push(3);  
Pop();  
Push(4);  
Pop();  
Pop();  
Push(5);
```

20. After the completion of all operation, the number of elements present in stack is?

- a) 1  
b) 2  
c) 3  
d) 4

21. The type of expression in which operator succeeds its operands is?

- a) Infix Expression  
b) Prefix Expression  
c) **Postfix Expression**  
d) Both Prefix and Postfix Expressions

23. If the elements “A”, “B”, “C” and “D” are placed in a stack and are deleted one at a time, what is the order of removal?

- a) ABCD  
b) **DCBA**  
c) DCAB  
d) ABDC

24. Stack follows

- a) FIFO
- b) **LIFO**
- c) FILO
- d) LILO

25. LIFO stands for

- a) Last in First out
- b) Last insert first obsolete
- c) Last insert forward off
- d) None of the above

26. Which of the following is not an example for application of stack in computer science?

**a. Print command from multiple files from same or different computers**

- b. Reversing a string
- c. Option of redo/undo in any text/image editor
- d. Back button present in browser to visit web pages last seen

27. The end from which element is added or deleted is called \_\_\_\_\_ in a stack.

- a. TOP**
- b. POP
- c. END
- d. ENQUEUE

28. Which of the following is not performed on stack?

- a. PUSH
- b. POP
- c. PEEK
- d. None of these**

29. Adding a new element in a stack is called

- a. Push**
- b. Pop
- c. Insert
- d. Enqueue

30. Which of the following is not an inherent application of stack?

- a) Reversing a string
- b) Evaluation of postfix expression
- c) undo/redo operations
- d) Job scheduling**

31. Which of the following is not an application of stack?

- a. Print command from multiple files from same or different computers**
- b. Reversing a string
  - c. Option of redo/undo in any text/image editor
  - d. Back button present in browser to visit web pages last seen

32. (i) An element can only be removed or added at the end of the stack  
(ii) The removal of element from stack is called POP
- a. (i) True, (ii) False  
b. (i) False, (ii) True  
**c. Both are True**  
d. Both are False
33. Shekhar wants to make a function 'push' to insert a new item in stack 'S' but he is not sure which python method exactly he should use to create so. Help in selecting correct option from followings:
- a. Def push(s, item):  
    s.insert(item)  
b. Def push(s, item):  
    s.extend(item)  
**c. Def push(s, item):**  
    **s.append(item)**  
d. All are correct
34. Stack is \_\_\_\_\_ and \_\_\_\_\_ type of data structure.
- a. Static, linear  
b. Static, non-linear  
**c. Dynamic, linear**  
d. Dynamic, non-linear
35. Trying to add a new element to a full stack result in an exception which is called
- a. Underflow  
**b. Overflow**  
c. Peek  
d. None
36. Removing an element from stack is referred to
- a. PUSH  
**b. POP**  
c. ERASE  
d. DEQUEUE
37. Python uses \_\_\_\_\_ data type for creating and managing stack
- a. list**  
b. dictionary  
c. tuple  
d. numpy array
38. Damru has written a python code to delete an element from stack but he is getting an exception (error) showing 'Underflow'. What could be the reason behind it?
- a. Stack is Full  
b. Stack is not defined

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### c. Stack is empty

- d. Stack has only one element

39. What will this given code do?

```
def POP(stack):  
    if len(stack)==0:  
        print("Underflow")  
    else:  
        stack.pop()
```

- a. Will delete first element from given stack
- b. Will delete last element from given stack**
- c. Will produce error as no index is passed to pop()
- d. Will delete all the elements from given stack

40. Pile of book in the library represents

- a. Stack**
- b. Queue
- c. Tree
- d. Numpy array

41. Predict the output of given code:

```
R = 0  
Numlist = [3,4,6]  
Numlist.append(2)  
R = R + numlist.pop()  
R = R + numlist.pop()  
print(R)
```

- a. 8**
- b. 7
- c. 0
- d. Error

42. When the expression A – B is written as AB-, then it is called as

- a. Infix notation
- b. Prefix notation
- c. Postfix notation**
- d. Suffix notation

43. To convert infix to postfix notation, \_\_\_\_\_ data structure is used:

- a. Array
- b. Stack**
- c. Queue
- d. String

44. Select correct output for the following sequence of operation (rightmost no signifies top):

Push(4), push(7), pop(), push(1), push(3), pop(), push(5)

- a. 47135
- b. 415**
- c. 5
- d. 374

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45. For a stack of 5 elements, when will underflow occur?
- a. When stack has all 5 elements and you insert a new element
  - b. When all elements have been deleted and no more can be deleted**
  - c. When only one element is left and you try to delete that last element
  - d. You try to delete an element that does not exist in stack
46. Evaluate the postfix expression ( $A=3$ ,  $B=4$ ,  $C=2$ ,  $D=4$ ):  $AB+DC/-$
- a. 4
  - b. 5**
  - c. 6
  - d. 0
47. Evaluate the following postfix expression to show result:  $10\ 20\ +\ 25\ 15\ -\ *\ 30\ +$
- a. **330**
  - b. 300
  - c. 70
  - d. 0
48. Write equivalent postfix expression for the infix expression  $A + B - D/X$
- a.  $AB+D-X/$
  - b.  $ABD- + X/$
  - c.  $AB+DX/-$**
  - d.  $BD-A+X/$
49. Give postfix for the following expression:  $A*(B + (C + D) * (E + F)/G) * H$
- a.  $ABCD+EF+*G/+*H*$**
  - b.  $ABCD+EF+G/*\times H^*$
  - c.  $ABCD+*EF+G/*H^*$
  - d.  $ABCD+EF+G/*H^*+$
50. Convert  $((A + B)^* C/D + E ^ F)/G$  into postfix notation
- a.  $AB+CD/*EF^+G/$**
  - b.  $AB+*C*D/EF^+G/$
  - c.  $AB+*C*D/EF^+G/$
  - d. None of these
51. Give postfix expression for following infix expression: NOT A OR NOT B NOT C
- a. A NOT B NOT C NOT OR AND
  - b. A NOT B NOT OR C NOT AND
  - c. A NOT OR B NOT AND C NOT
  - d. A NOT B NOT C NOT AND OR**
52. Evaluate following postfix expression and display result:  $20\ 45\ +\ 20\ 10\ -\ 15\ +\ *$
- a. 1625**
  - b. 665
  - c. 825
  - d. None

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53. What value should be placed at blank space in following postfix expression to get desired result:  $5\ 3\ *\ 7\ 1\ -\ * \underline{\quad}\ -\ =\ 80$

- a. **10**
- b. 12
- c. 8
- d. 6

54. If the sequence of operations performed on stack is

Push(1) push(2) pop() push(3) pop() push(4) push(5) pop() pop()

Then the output would be

- a. 3
- b. 2
- c. 1**
- d. 14

55. For given stack containing 5 elements as Stack : R A M \_ \_

Assertion: R cannot be deleted before M

Reason: As M has been inserted after R and follows LIFO rule

- a. A is correct, R is incorrect
- b. A is incorrect, R is correct
- c. Both A and R is correct and R is correct explanation of A**
- d. Both A and R is correct but R is not correct explanation of A

56. Consider the following postfix expression of stack. The required output is 5. Select the missing operators.

4, 6, 4, +, 10, \_\_, \_\_

- a. - /
- b. / -
- c. + /
- d. / +**