Q1. Which of the following is the principle of stack?
a) FIFO
b) LIFO
c) FILO
d) Both B and C
Answer: d

Q2. Which operation inserts an element in a stack?
a) Insert
b) Append
c) Push
d) Add
Answer: c

Q3. Which operation removes an element from a stack?
a) Delete
b) Pop
c) Remove
d) Extract
Answer: b

Q4. Which operation allows you to see the top element of a stack without removing it?
a) Pop
b) Peek
c) Push
d) None
Answer: b

Q5. What happens when we try to pop from an empty stack?
a) Underflow
b) Overflow
c) Error
d) Deadlock
Answer: a

Q6. What happens when we try to push onto a full stack (array implementation)?
a) Underflow
b) Overflow
c) Deadlock
d) None

Answer: b

Q7. Which of the following is an application of stack?
a) Expression evaluation
b) Undo operation
c) Function call management
d) All of the above
Answer: d

Q8. A stack can be implemented using:
a) Arrays
b) Linked Lists
c) Both
d) None
Answer: c

Q9. Which symbol table implementation uses a stack?
a) Compiler
b) Interpreter
c) Both
d) None
Answer: a

Q10. What is the time complexity of push operation in a stack?
a) O(1)
b) O(n)
c) O(log n)
d) O(n log n)
Answer: a

Q11. What is the time complexity of pop operation in a stack?
a) O(1)
b) O(n)
c) O(log n)
d) O(n log n)
Answer: a

Q12. Infix to postfix conversion uses which data structure?
a) Queue
b) Stack

c) Tree

d) Graph

Answer: b

Q13. Which of these problems cannot be solved using stack?

a) Tower of Hanoi

b) Balanced parentheses

c) Job scheduling

d) Expression evaluation

Answer: c

Q14. Which of the following data structures is recursive in nature?

a) Queue

b) Stack

c) Array

d) Graph

Answer: b

Q15. The memory required to store n elements in a stack implemented using array is:

a) $O(1)$

b) $O(\log n)$

c) $O(n)$

d) $O(n^2)$

Answer: c

Q16. Which of the following can detect stack overflow?

a) Compiler

b) Interpreter

c) Run-time system

d) None

Answer: c

Q17. Which of the following applications use stack?

a) Depth First Search

b) Breadth First Search

c) Dijkstra's Algorithm

d) Kruskal's Algorithm

Answer: a

Q18. Which data structure is used to evaluate postfix expression?

a) Queue
b) Stack
c) Array
d) Tree
Answer: b

Q19. Which of the following is true for stack?
a) Insertion at rear end
b) Deletion at rear end
c) Insertion and deletion at the same end
d) None
Answer: c

Q20. Which of the following uses stacks internally?
a) Recursion
b) Iteration
c) Compilation
d) None
Answer: a

Q21. Which data structure is most suitable to check palindromes?
a) Queue
b) Stack
c) Array
d) Graph
Answer: b

Q22. What is the initial condition of an empty stack (array implementation)?
a) Top = 0
b) Top = -1
c) Top = 1
d) Top = null
Answer: b

Q23. Which of the following is not a stack operation?
a) Push
b) Pop
c) Peek
d) Append
Answer: d

Q24. Which algorithm is used for backtracking problems?

a) BFS

b) DFS

c) Stack-based recursion

d) Hashing

Answer: c

Q25. Which of the following is a limitation of array implementation of stack?

a) Fixed size

b) Complexity

c) Traversal

d) None

Answer: a

Q26. Stack can be used to reverse:

a) Array

b) String

c) Linked List

d) All of the above

Answer: d

Q27. Which of the following applications require stack?

a) Browser history navigation

b) Undo operation

c) Arithmetic expression parsing

d) All of the above

Answer: d

Q28. What is the default top value in linked list implementation of stack?

a) NULL

b) -1

c) 0

d) n

Answer: a

Q29. What will be the result of popping from a stack with one element?

a) Stack underflow

b) Stack empty

c) Stack overflow

d) Deadlock

Answer: b

Q30. Which of the following uses both stack and queue?

a) BFS

b) DFS

c) Dijkstra's Algorithm

d) Tree Traversals

Answer: d

Q31. Which stack is used in recursive function calls?

a) Call stack

b) Function stack

c) Data stack

d) Control stack

Answer: a

Q32. Which of the following is used for implementing undo feature?

a) Queue

b) Stack

c) Graph

d) Tree

Answer: b

Q33. Which of the following is a postfix expression?

a) (A+B)

b) (A+B)*

c) AB+

d) +AB

Answer: c

Q34. Which of the following is used in evaluation of arithmetic expressions?

a) Stack

b) Queue

c) Array

d) Tree

Answer: a

Q35. Which of the following is true about stack overflow?

a) Too many elements pushed

b) Too many elements popped
c) Stack empty
d) None
Answer: a

Q36. Which of the following expressions converts infix to prefix?
a) Reverse infix + postfix
b) Reverse infix + postfix + reverse again
c) Postfix directly
d) Prefix directly
Answer: b

Q37. Which of these is a postfix expression of A+B*C?
a) ABC+*
b) AB*C+
c) A+BC*
d) A*B+C
Answer: b

Q38. Which of the following expressions is postfix for (A+B)*(C-D)?
a) AB+CD-*
b) A+B*C-D
c) *+AB-CD
d) AB*+CD-
Answer: a

Q39. In which memory segment is stack stored in C/Java?
a) Heap
b) Code
c) Stack
d) Static
Answer: c

Q40. Which stack is used to store local variables of a function?
a) Function stack
b) Call stack
c) Heap stack
d) System stack
Answer: b

Q41. Which is an advantage of linked list stack over array stack?

a) Fixed size

b) Dynamic size

c) Faster indexing

d) None

Answer: b

Q42. Which stack is used by JVM internally?

a) Operand stack

b) Data stack

c) Call stack

d) Instruction stack

Answer: a

Q43. Which of these can be used to check palindromes using stack?

a) Push first half, pop while comparing

b) Push all, pop all

c) Push only vowels

d) None

Answer: a

Q44. Which of the following is true about stack data type?

a) Abstract Data Type

b) Primitive Type

c) Derived Type

d) None

Answer: a

Q45. Which is the minimum number of stacks required to implement a queue?

a) 1

b) 2

c) 3

d) 4

Answer: b

Q46. Which of these is a postfix evaluation of 2 3 + 5 *?

a) 10

b) 25

c) 30

d) 15

Answer: b

Q47. Which of the following is NOT an application of stacks?
a) Expression evaluation
b) Recursion
c) CPU scheduling
d) Backtracking
Answer: c

Q48. Which of the following is the maximum size of stack in array implementation?
a) Top
b) n
c) Size defined at creation
d) Infinite
Answer: c

Q49. Which of the following is the time complexity of searching for an element in a stack?
a) O(1)
b) O(log n)
c) O(n)
d) O(n log n)
Answer: c

Q50. Which of the following statements is true for stack?
a) It is FIFO
b) It is FILO
c) It is random
d) It is non-linear
Answer: b