Result: Pass
Marks: 23/40
Percentage: 57.50 %
Questions: 40
Correct Answers: 23
Attempted: 40

1. Which of the following data structures allows you to access elements in a Last-In-First-Out (LIFO) manner?

Answers

1. Queue

2. Stack

3. Linked List

4. Tree

2. Which sorting algorithm has the worst-case time complexity of O(n^2)?

Answers

1. Quick Sort

2. Merge Sort

3. Heap Sort

4. Insertion Sort

3. What is the time complexity of finding an element in a binary search tree (BST) with n nodes in the worst case?

Answers

1. O(log n)

2. O(n)

3. O(n log n)

4. O(1)

4. Which of the following data structures dynamically resizes itself to accommodate new elements and shrinks when elements are removed?

Answers

1. Array

2. Linked List

3. Stack

4. ArrayList

5. What is the average time complexity of Quick Sort algorithm?

Answers

1. O(n)

2. O(n log n)

3. O(n^2)

4. O(log n)

6. Which of the following is not a fundamental operation on a binary heap?

Answers

1. Insert

2. Delete

3. Search

4. Extract Min/Max

7. Which of the following data structures can be traversed in multiple ways such as Preorder, Inorder, and Postorder?

Answers

1. Heap

2. Queue

3. Binary Search Tree

4. Stack

8. What is the worst-case time complexity of the Bubble Sort algorithm?

Answers

1. O(n)

2. O(n log n)

3. O(n^2)

4. O(log n)

9. What is the worst-case time complexity of the merge sort algorithm?

Answers

1. O(n)
2. O(log n)
3. O(n log n)
4. O(n^2)

10. Which data structure uses First-In-First-Out (FIFO) ordering?

Answers

1. Stack
2. Queue
3. Heap
4. Hash Table

11. Which searching algorithm requires the array to be sorted beforehand?

Answers

1. Linear Search
2. Binary Search
3. DFS
4. BFS

12. What is the time complexity of inserting an element into a HashSet in Java?

Answers

1. O(1)

2. O(n log n)

3. O(n^2)

4. O(log n)

13. Which of the following statements is true about Dijkstra's algorithm?

Answers

1. It can handle graphs with negative weight edges.

2. It finds the longest path between two nodes in a graph.

3. It is a greedy algorithm used to find the shortest path in a weighted graph.

4. It requires a priority queue to work efficiently.

14. In Java, which interface provides the framework for collecting and managing large sets of data?

Answers

1. Collection

2. List

3. Map

4. Set

15. What is the worst-case time complexity of the Breadth-First Search (BFS) algorithm?

Answers

1. O(log n)

2. O(n^2)

3. O(n log n)

4. O(V + E), where V is the number of vertices and E is the number of edges

16. What is the time complexity of deleting an element from the heap (assuming heap property is maintained)?

Answers

1. O(log n)

2. O(1)

3. O(n log n)

4. O(n^2)

17. Which sorting algorithm is known for its adaptability to nearly sorted arrays and small datasets, making it perform better in such cases?

Answers

1. Merge Sort

2. Quick Sort

3. Insertion Sort

4. Selection Sort

18. In Java, which data structure allows null elements and maintains insertion order?

Answers

1. TreeSet

2. LisnkedHash Set

3. HashMap

4. HashSet

19. What data structure uses the "hashing" technique for storing elements?

Answers

1. Linked list

2. Queue

3. Stack

4. HashMap

20. What data structure uses the "hashing" technique for storing elements?

Answers

1. It can only be applied to sorted arrays.

2. It has a worst-case time complexity of O(n).

3. It performs best on unsorted arrays.

4. It uses linear search to find elements.

21. Which of the following is NOT a valid implementation of a stack in Java?

Answers

1. Linked List

2. Array Deque

3. Stack Class

4. HashSet

22. Which data structure is typically used to implement LIFO (Last-In-First-Out) ordering of elements?

Answers

1. Stack

2. Queue

3. List

4. HashMap

23. What is the worst-case time complexity of the Depth-First Search (DFS) algorithm on a graph with V vertices and E edges?

Answers

1. O(V)

2. O(E)

3. O(E)

4. O(V * E)

24. Which sorting algorithm is generally considered the fastest for sorting small arrays or lists?

Answers

1. Insertion Sort

2. Quick Sort

3. Selection Sort

4. Merge Sort

25. What is the space complexity of the merge sort algorithm?

Answers

1. O(n log n)

2. O(log n)

3. O(n^2)

4. O(1)

26. Which data structure is typically used to implement a priority queue?

Answers

1. Heap
2. Stack
3. Linked List
4. HashTable

27. Which algorithm is used for finding all possible paths between two nodes in a graph?

Answers

1. Dijkstra's algorithm
2. Bellman-Ford algorithm
3. Floyd-Warshall algorithm
4. Depth-First Search (DFS)

28. What is the time complexity of searching for an element in a Binary Search Tree (BST) in the worst case?

Answers

1. O(log n)
2. O(n^2)
3. O(n log n)

4. O(n)

29. What is the time complexity of finding the maximum element in a Max-Heap?

Answers

1. O(log n)

2. O(n log n)

3. O(n^2)

4. O(1)

30. What is the time complexity of searching for an element in a Binary Search Tree (BST) in the worst case?

Answers

1. O(n)

2. O(log n)

3. O(n log n)

4. O(n^2)

31. What is the worst-case time complexity of the Floyd-Warshall algorithm for finding all-pairs shortest paths in a graph?

Answers

1. O(n)

2. O(log n)

3. O(n^2)

4. O(n^3)

32. Which sorting algorithm has a time complexity of O(n log n) in the worst case but does not require extra space?

Answers

1. Merge Soert

2. Quick Sort

3. Heap Sort

4. Insertion Sort

33. What is the worst-case time complexity of finding the k-th smallest element in an unsorted array using the Quick Select algorithm?

Answers

1. O(1)

2. O(n log n)

3. O(log n)

4. O(n)

34. In Java, which interface provides a way to store key-value pairs where keys are unique?

Answers

1. List

2. Set

3. Map

4. Queue

35. Which data structure is typically used to implement a priority queue?

Answers

1. Heap

2. Stack

3. Linked List

4. Hash Table

36. Which sorting algorithm is generally considered the fastest for sorting small arrays or lists?

Answers

1. Quick Sort

2. Bubble Sort

3. Insertion Sort

4. Merge Sort

37. In Java, which collection class provides a way to handle a group of objects in a LIFO order?

Answers

1. Linked List

2. Queue

3. Stack

4. Map

38. Which data structure is typically used to implement a bounded-size deque?

Answers

1. LinkedList

2. ArrayDeque

3. Hash

4. Set

39. What is the time complexity of merging two Binary Heaps of sizes m and n into a single Binary Heap?

Answers

1. O(m log n)

2. O(n log m

3. O(m + n)

4. O(log (m * n))

40. What is the time complexity of searching for an element in a Binary Search Tree (BST) in the worst case?

Answers

1. O(n)

2. O(log n)

3. O(1)

4. O(n log n)