

1. Which data structure uses LIFO?

- A) Queue
- B) Stack
- C) Array
- D) Linked List

Answer: B

2. What is the time complexity of binary search?

- A) $O(n)$
- B) $O(n^2)$
- C) $O(\log n)$
- D) $O(1)$

Answer: C

3. Which data structure is used in BFS?

- A) Stack
- B) Queue
- C) Tree
- D) Graph

Answer: B

4. Which sorting algorithm has the best average-case performance?

- A) Bubble
- B) Selection
- C) Merge
- D) Insertion

Answer: C

5. Which traversal uses recursion most naturally?

- A) Inorder
- B) Level-order
- C) Postorder
- D) Preorder

Answer: A

6. Which of the following is not linear?

- A) Array
- B) Linked List
- C) Tree
- D) Stack

Answer: C

7. Which operation is not efficient in an array?

- A) Insertion
- B) Traversal
- C) Search
- D) Access

Answer: A

8. What is a full binary tree?

- A) All nodes have 2 children
- B) All levels filled
- C) Only root node
- D) None

Answer: A

9. Which DS is used for undo functionality?

- A) Queue

- B) Array
- C) Stack
- D) Tree

Answer: C

10. DFS is implemented using?

- A) Queue
- B) Stack
- C) Heap
- D) Graph

Answer: B

11. Which of the following is not a type of tree traversal?

- A) Inorder
- B) Preorder
- C) Postorder
- D) Middleorder

Answer: D

12. In a min-heap, the smallest element is at:

- A) Leaf
- B) Middle
- C) Root
- D) Any node

Answer: C

13. What is the height of a binary tree with one node?

- A) 0
- B) 1

C) 2

D) -1

Answer: A

14. Which data structure is best for implementing priority queue?

A) Stack

B) Queue

C) Heap

D) Graph

Answer: C

15. Which algorithm is used to find shortest path in a graph?

A) DFS

B) BFS

C) Dijkstra

D) Kruskal

Answer: C

16. Which DS uses FIFO?

A) Stack

B) Queue

C) Tree

D) Graph

Answer: B

17. Which is not a characteristic of a linked list?

A) Dynamic size

B) Fast insertion

C) Sequential access

D) Random access

Answer: D

18. Which tree has all levels completely filled?

A) Complete

B) Binary

C) Balanced

D) Full

Answer: A

19. Time complexity of linear search?

A) $O(n)$

B) $O(1)$

C) $O(\log n)$

D) $O(n \log n)$

Answer: A

20. Best case of quicksort occurs when?

A) Pivot is smallest

B) Pivot is median

C) Pivot is largest

D) All elements are same

Answer: B