Data Structure

Question Bank

1. Explain the terms “Linked List”, “head," and "tail" in the context of a linked list.
2. What are the different types of linked lists (e.g., singly linked, doubly linked, circular linked), and how do they differ?
3. Write a program to demonstrate different operations of linked list.
4. Explain the concept of a doubly linked list. What are its advantages and disadvantages compared to a singly linked list?
5. State and explain concept of circular linked list. Write an algorithm for insertion and deletion with all possibilities.
6. What do you mean by Static and dynamic memory allocation and how we can differentiate them?
7. Discuss the applications of linked list.
8. What is hash tables in data structures and why is it important?
9. Explain the concept of a hash function. What are its key properties?
10. What is a graph data structure, what are different applications of it and how does it differ from other data structures like arrays and trees?
11. Explain types of graph in data structure
12. Explain the terms "adjacency matrix" and "adjacency list."
13. Define Sparse matrix and its usage in Data structure with example.
14. Describe the breadth-first search (BFS) algorithm for traversing a graph.
15. What is a topological sorting, and how is it computed with example?
16. Describe Spanning tree of a weighted graph also explain its types.
17. Explain Dijkstra's algorithm for finding the shortest path in a weighted graph.
18. Compare DFS and BFS.
19. How does a stack differ from other data structures like queues and arrays?
20. What are the two primary operations supported by a stack?
21. What is the purpose of the "push" operation in a stack?
22. What is the purpose of the "pop" operation in a stack?
23. Can you give an example of a real-life scenario where a stack data structure is useful?
24. What is a "stack overflow," and "stack underflow”, why does it occur?
25. Explain the use of a stack in evaluating arithmetic expressions (e.g., infix to postfix conversion).
26. Discuss the application of stack
27. Discuss Circular queue, Priority queue and Singular queue in detail.
28. What are the two primary operations supported by a queue?
29. Convert “a+b*c+d” notation into postfix notation.
30. What is the purpose of the "enqueue" operation in a queue?
31. What is the purpose of the "dequeue" operation in a queue?
32. Explain the use of a double-ended queue (deque). What are its applications?