

# Question Bank

Students are advised to prepare answers to the questions considering each of the questions as a long answer question. Provide appropriate code segment wherever needed.

**Department : MCA**

**Semester : II**

**Paper : CCMCA 203**

**Subject : Data Structures using C++**

**Faculty : Avinash Kumar**

1. What Does Abstract Data Type Mean?
2. What is a Data Structure?
3. What Are The Goals Of Data Structure?
4. List Out the Areas in Which Data Structures Are Applied Extensively?
5. What are linear and non linear data Structures?
6. What are the various operations that can be performed on different Data Structures?
7. What Is Sequential Search?
8. What Is Dangling Pointer And How To Avoid It?
9. How is an Array different from Linked List?
10. What Do You Mean By Recursive Definition?
11. What is Stack and where it can be used?
12. Convert the Expression  $((a + B) * C - (d - E) ^ (f + G))$  To Equivalent Prefix and Postfix Notations?
13. What Do You Mean By Overflow And Underflow?
14. What Is The Difference Between A Stack And An Array?
15. What Is A Queue?

16. What Is A Priority Queue?
17. What is a Queue, how it is different from stack and how is it implemented?
18. What are Infix, prefix, Postfix notations?
19. What is a Linked List and what are its types?
20. Define Circular List?
21. What Are The Disadvantages Of Circular List?
22. What Are the Advantages of Linked List over Array (static Data Structure)?
23. What Do You Mean By Garbage Collection?
24. Which data structures are used for BFS and DFS of a graph?
25. Can doubly linked be implemented using a single pointer variable in every node?
26. Which Data Structure Should be used for implementing LRU cache?
27. How to check if a given Binary Tree is BST or not?
28. List out Few of the Application of Tree Data-structure?
29. What Is The Type Of The Algorithm Used In Solving The 8 Queens Problem?
30. In RDBMS, What Is The Efficient Data Structure Used In The Internal Storage Representation?
31. What Is A Spanning Tree?
32. Does The Minimal Spanning Tree Of A Graph Give The Shortest Distance Between Any 2 Specified Nodes?
33. What Is The Difference Between Null And Void Pointers?
34. What is algorithm?
35. What are the criteria of algorithm analysis?
36. What is asymptotic analysis of an algorithm?
37. What are asymptotic notations?
38. Briefly explain the approaches to develop algorithms.
39. Give some examples greedy algorithms.
40. What are some examples of divide and conquer algorithms?
41. What are some examples of dynamic programming algorithms?
42. What operations can be performed on stacks?

43. What operations can be performed on Queues?
44. What is binary search?
45. What is bubble sort and how bubble sort works?
46. What is selection sort?
47. What is merge sort and how it works?
48. Explain 'insertion sort'?
49. How quick sort works?
50. What is a graph?
51. How depth first traversal works?
52. How breadth first traversal works?
53. What is a tree?
54. What is a binary tree?
55. What is a binary search tree?
56. What is tree traversal?
57. What is an AVL Tree?
58. How many spanning trees can a graph has?
59. How Kruskal's algorithm works?
60. How Prim's algorithm finds spanning tree?
61. What is a minimum spanning tree (MST)?
62. What is a heap in data structure?
63. What is hashing?
64. Explain Tower of Hanoi concept.
65. What do you mean by Huffman Code?
66. What are Multiway Trees? Explain its various types.