

BE ---III--- SEM ---- (CE) Question Bank

(Data Structure & Algorithm)

All questions carry equal marks (10 marks)

Q.1	What is Data Structure? Explain Various types of Data Structure in detail.
Q.2	What do you mean by Array? Describe the storage structure of Array. Also Explain Various types of Array in detail.
Q.3	What is Stack? Why it is known as LIFO? Write algorithm of PUSH, POP, PEEP and CHANGE operation on Stack.
Q.4	List the applications of Stack. What is Recursion? Explain Recursion for find a factorial of number in detail.
Q.5	Write an algorithm for converting Unparenthesized Infix expression into Postfix expression.
Q.6	Write an algorithm for converting Parenthesized Infix expression into Postfix expression.
Q.7	What is Queue? Why it is known as FIFO? Write an algorithm to insert and delete an element from a simple Queue.
Q.8	What are Circular Queue and Priority Queue? Write an algorithm to insert and delete an element from a Circular Queue.
Q.9	What do you mean by Link list? Write an algorithm to insert and delete a node in Singly Linked List.
Q.10	What is Doubly Linked List? Write an algorithm to insert and delete a node in Doubly Linked List.
Q.11	What is Circular Linked List? State the advantages and disadvantages of Circular Link List Over Doubly Linked List and Singly Linked List. Also write advantages of Linked List over an Array.
Q.12	Explain Breadth First Search traversal of Graph using an example.
Q.13	Explain Depth First Search traversal of Graph using an example.
Q.14	What is Spanning Trees? Explain Spanning Tree in detail with example.
Q.15	What is Binary Tree? Explain Representation of Binary tree. Also explain different operation that can be performed on Binary tree.
Q.16	Explain Inorder, Preorder and Postorder Traversal operation on Binary tree with example.

Q.17	List the types of Binary Search Tree. Explain Insertion and Deletion Operation on Binary Search Tree with Example.
Q.18	What is the meaning of height balanced tree? How rebalancing is done in height balanced tree.
Q.19	Construct a tree for the given inorder and postorder traversals. Inorder : DGBAHEICF Postorder : GDBHIEFCA
Q.20	Discuss following with reference to trees. (i) Height of the tree (ii) Complete Binary Tree (iii) Expression tree (iv) Sibling (v) Full Binary Tree
Q.21	Explain Selection Sort with the help of example.
Q.22	Explain Bubble Sort with the help of example.
Q.23	Explain Merge Sort with the help of example.
Q.24	Explain Quick Sort with the help of example.
Q.25	Explain Radix Sort with the help of example.
Q.26	Explain Address Calculation Sort with the help of example.
Q.27	What do you mean by Searching? Explain Sequential search and Binary search with help of example.
Q.28	What is Hashing? Explain Different Hash function method in detail. Explain each one.
Q.29	State different File Organizations and discuss the advantages and disadvantages of each of them.
Q.30	Write a short note on indexed file organization.
Q.31	Explain the basic two techniques for Collision-resolution in Hashing with example. Also explain primary clustering.
Q.32	Write a short note on Threaded binary tree.
Q.33	What is File Structure? Explain Sequential File Structure in detail.
Q.34	Discuss following with reference to graphs. (i) Directed graph (ii) Undirected graph (iii) Degree of vertex (iv) Null graph (v) Acyclic Graph
Q.35	Convert following Infix expression into Postfix expression using Tabular method. $a - b / c * d + e * f / g$
Q.36	Define an AVL tree. Obtain an AVL tree by inserting one integer at a time in the following sequence. 150, 155, 160, 115, 110, 140, 120, 145, 130, 147, 170, 180. Show all the steps.
Q.37	Explain various multiple key access file organization in brief with advantages and disadvantages of each method.
Q.38	What is Graph? Explain matrix and linked list representation of a graph. Also give the application of Graph.
Q.39	Create a Binary Search Tree for the following data and do in-order, Preorder and Post-order traversal of the tree. 50, 60, 25, 40, 30, 70, 35, 10, 55, 65, 5
Q.40	List various fundamental file organization techniques and explain each in brief.