

- N.B. :** (1) Question no. 1 is compulsory.
(2) Attempt any three questions out of remaining five questions.
1. (a) Give ADT for queue Data Structure. Discuss in brief applications for queue data structure. [5]
(b) Compare quicksort and radix sort on the basis of advantages and disadvantages? [5]
(c) Discuss recursion, write in program in C++ using recursion for generating Fibonacci series. [5]
(d) What is a graph? Explain methods to represent a graph. [5]
 2. (a) Write a program in C to implement quicksort algorithm. [8]
(b) Write a function for generation of inorder, preorder and postorder transversal of a tree. [7]
(c) Consider a list of numbers [5]
67, 12, 89, 26, 38, 45, 22, 79, 53, 9, 61
and sort them using heap sort.
 3. (a) Write a program in C to implement singly linked list supports the following operations [15]
 1. Insert a node in beginning
 2. Insert a node in end
 3. Deleting a node
 4. Displaying the list.
(b) Explain Huffmann Algorithm. [5]
 4. (a) Explain file and different file handling operations? [8]
(b) What is a circular queue, implement a circular queue? [7]
(c) Explain linear and non linear data structures? [5]
 5. (a) Explain DFS in detail with an example? [10]
(b) Explain BFS in detail with an example? [10]
 6. (a) Write a program in C to implement deletion of a node from binary tree. The program should consider all cases. [10]
(b) Hash the flowing using table of size 11 use any two collision resolution techniques [10]
23, 35, 10, 71, 67, 32, 1000, 18, 10, 90, 44.