Q1

a) Describe asymptotic notation in detail.

b) What is recursion? Explain in detail with example

Q2

a) Differentiate between the stack and queue.

b) Write a ‘C’ program to convert the infix expression to postfix expression.

Q3

a) Write an algorithm for insert and delete operations in circular linked list.

b) How a binary search tree is traversed? Explain with suitable example.

Q4

a) How can you convert an infix expression to postfix expression using stack? Give one example.

b) Write functions to implement recursive versions of preorder, inorder and postorder traversals of a binary tree.

Q5

a) Write a ‘C’ program, how to insert and delete elements in the Binary Search Tree?

b) Discuss **Kruskal’s algorithm** with the following graph.

(Question paper contains the graph diagram)

Q6

a) Explain shell sort algorithm and simulate it for the following data:
35, 33, 42, 10, 14, 19, 27, 44

b) Explain sequential search and simulate it for the following data:
4, 21, 36, 14, 62, 91, 8, 22, 81, 77, 10

Q7

a) Explain multiway merge sort with an example.

b) What do you mean by sorting? Describe the need for sorting.

Q8 – Write short notes on any two

i) Queue using linked list
ii) Hashing
iii) B+ tree
iv) Postfix expression evaluation