

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Attempt the following:-

- a) What is a Stack?
- b) What are the different types of Queues?
- c) Define the Big O, Omega and Theta.
- d) Convert the given expression into postfix and prefix
 $(a + b) * (c + d)$
- e) What do you understand from Indexed Search? (5x2)

UNIT - I

- II. Describe Data Structure with its types in detail (10)
- III. Define the Linked list with its types and memory representation in detail. (10)
- IV. Write an algorithm to design the stack with linked list with its applications. (10)

UNIT - II

- V. Describe the concept of Adjacency matrix and Adjacency list with example. Give the algorithm for breadth-first search traversal. (10)
- VI. What do you understand from Binary Search tree? Explain the complete process to design a Binary search tree with example (10)
- VII. Define which sorting technique is known as Divide and Conquer technique and why. Give algorithm to perform this sorting technique. (10)

x-x-x