

Q.P. Code :24475

(Time: 3 Hours)

[Marks: 80]

N.B.: 1) Question No. 1 is compulsory.

2) Answer any three out of remaining questions.

3) Assume suitable data if necessary.

4) Figures to the right indicate full marks.

- Q1. A). Define stack. Give its applications? 2
- B). what are the different linear and non- linear data structures? 3
- C). what is a Linked list? Explain its types. 3
- D). Define asymptotic notation with an example. 3
- E). what is Recursion? State its advantages and disadvantages. 3
- F). Define minimum spanning tree. List the techniques to compute minimum spanning tree. 3
- G). Define expression tree with example. 3
- Q2. A). Write an algorithm to create doubly linked list and display the list? 10
- B). Write an algorithm to implement Queue using array? 10
- Q3. A). Write an algorithm to convert INFIX to POSTFIX expression? 10
- B). Write the algorithm for merge sort. Comment on its complexity? 10
- Q4. A). Write an algorithm to implement Priority queue? 10
- B). Explain BFS and DFS algorithm with examples? 10

- 5.A). Define Binary search tree. Explain the different operations on a binary search tree with examples? 10
- B). What is minimum spanning tree? Explain Kruskal's Algorithm with an example. 10
6. Short notes on (any 4) 20
- a. Selection Sort
 - b. Prim's Algorithm
 - c. Binary Search
 - d. Hashing techniques
 - e. Dijkstra's Algorithm

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