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

Q5.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

Q6. 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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