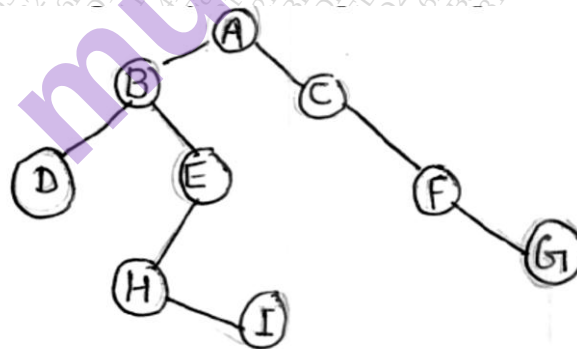


(3 Hours)

Total Marks:80

N.B : (1) Question No. 1 is compulsory
(2) Attempt any three questions out of remaining five.

1. (a) Explain with example. (I) Degree of tree (II) Height of tree (III) Complete Binary tree 03
 (b) Define Algorithm and write its properties. 03
 (c) Define Stack ADT. List it's applications. 03
 (d) Define Graph. List the types of graph with example. 03
 (e) Define Recursion with example. 03
 (f) Write an algorithm to count no. Of nodes in Singly Linked List. 02
 (g) Explain linear and non-linear data structures.
2. (a) Define Binary Search Tree. Create BST for the data: 16,27,9,11,36,54,81,63,72 10
 Write an algorithm to implement Insertion in BST.
 (b) Write an algorithm for Merge sort. Comment on it's Complexity. 10
3. (a) Write a program to convert INFIX expression into POSTFIX expression. 10
 (b) What is Linked List? Write an algorithm to insert a node after a node in a Linked list. 10
4. (a) Define Minimum Spanning trees with example. Explain Prim's algorithm to compute minimum spanning tree. 10
 (b) Traverse the following binary tree into preorder, postorder and inorder . 10



5. (a) Write a program to implement Priority queue using arrays. 10
 (b) What is Collision? Explain different Collision Resolution Techniques with example. 10
6. (a) Explain BFS and DFS algorithm with examples. 10
 (b) Explain Quick sort with an example. Write an algorithm for it and comment on it's complexity. 10
