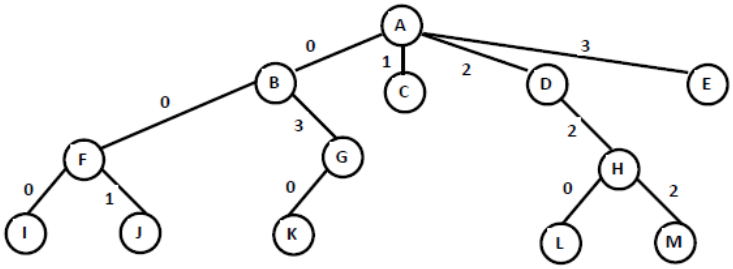
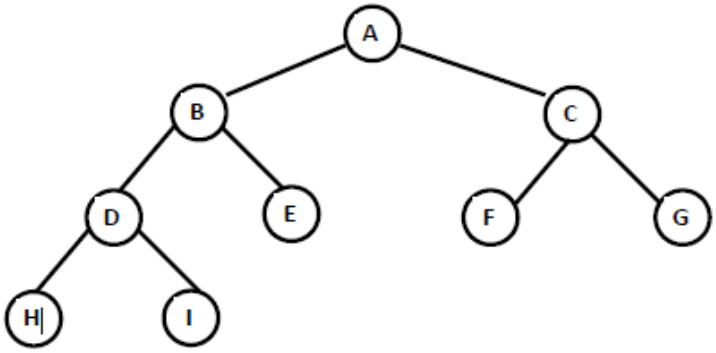
**Q1.** In K-ary tree, each node (except leaf nodes) can have at most K branches (i.e. children). Following figure shows an example of a K-ary tree where K is 4. In this figure, the numbers associated with each edge represents the Branch No. / Child No. (Ranging between 0 and 3 because K is 4) of the parent node. Write Pre , Post and inorder traversal of the tree if inorder is in the branch sequence – (0 1 root 2 3).



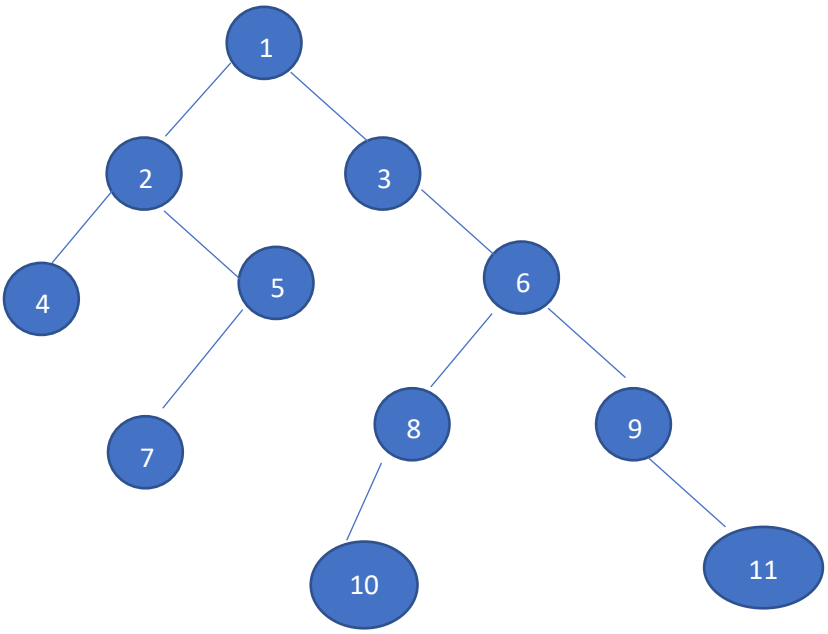

**Q2.** You have been given a list of characters LIST as {A, B, C, D, E, F, G, H, and I).

A. Is it a complete tree? Why Yes/No?
B. Write array representation of following Binary tree.
C. Given index of a child node how will you access its parent node index
D. Given index of a parent node how will you access its left and right child index
E. If a tree is left skewed is array representation an efficient one? Why?




**Q3**. You have been given above Tree in Q 2. What is the height and depth of all the nodes in given binary tree.

**Q4**.



A) Write Inorder, preorder and postorder traversal of the above Binary Tree.
B) Given only Preorder traversal of the tree write steps to get the postorder traversal
C) Given only Postorder traversal of the tree write steps to get the preorder traversal
D) Find maximum and minimum element of the tree

**Q5**. You have been given root of a binary tree (not necessarily complete binary tree) and height of a tree. Calculate the number of minimum and maximum number of nodes a binary tree may contain with given height h. Justify why!