XA (I) - Prog & Data Structure (2)

2017-20

Time : 4 Hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The questions are of equal value.
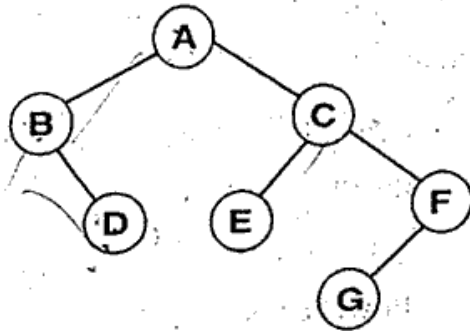
Answer any five questions.

1. What is Binary Search Tree (BST)? Construct BST from the following keys :

   58, 76, 14, 63, 65, 78, 43, 6, 11, 61

2. What is Binary Tree? Construct binary tree from the following expression :

   $v + u / x * y - z$

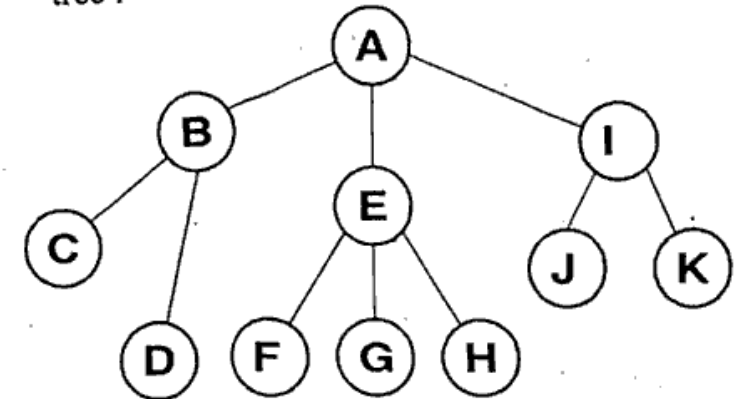3. Write preorder, Inorder, Post order and level order traversal of the following tree :

4. (a) What is general tree? Write an algorithm to conver + general tree into binary tree.

   (b) Convert the following general tree into binary tree :

5. (a) What is Stack? Write its push and POP operations with example.

   (b) Write prefix and postfix form of the following expression :

   $(a+b) * (c-d)$

6. What is linked list? Write an algorithm to create a circular linked list.

7. (a) Draw flowchart to find the real roots of a quadratic equation.

   (b) What is flowchart? Write different types of flowchart symbols.

8. (a) Write a C program for matrix multiplication.

 (b) What is recursion? Write a C program to find the value of a^b by using recursion where a is float and b is integer.

9. What is conrol statement in C language? Explain with suitable example of each type.

10. Write short notes on any two of the following :

 (a) BFS and DFS

 (b) Double linked list

 (c) Queue

 (d) Algorithm

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