

HW6

(deadline 2019/12/3)

手寫題：

10. In a binary tree, what is the maximum number of nodes that can be found in level 3? In level 4? In level 12?
14. Show the depth-first traversals (preorder, inorder, and postorder) of the binary tree in Figure 6-26.

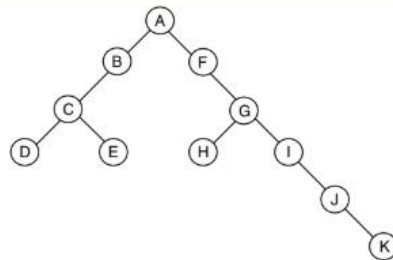


FIGURE 6-26 Binary Tree for Exercises 11, 14, 15, and 30

18. A binary tree has eight nodes. The postorder and inorder traversals of the tree are given below. Draw the tree.

Postorder: FECHGDBA

Inorder: FCEABHGD

22. Draw the corresponding binary tree of Figure 6-21(b).

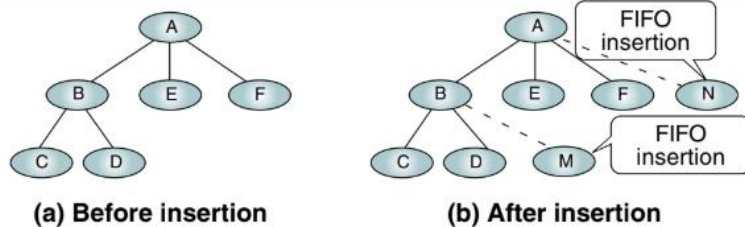


FIGURE 6-21 FIFO Insertion into General Trees

26. Find the infix, prefix, and postfix expressions in the expression tree of Figure 6-27.

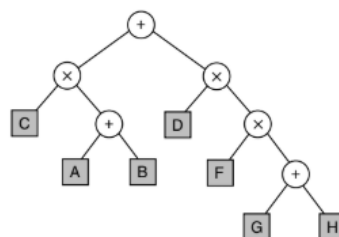


FIGURE 6-27 Expression Tree for Exercise 26

28. Draw the expression tree and find the infix and postfix expressions for the following prefix expression:

$\times - A B + \times C D / E F$

32. Write an algorithm that counts the number of nodes in a binary tree.
38. Rewrite the binary tree preorder traversal algorithm using a stack instead of recursion.

程式題：

48. Write the C implementation for the Huffman algorithm developed in Project 47. After it has been built, print the code. Then write a C program to read characters from the keyboard and convert them to your Huffman code. Include a function in your program that converts Huffman code back to text. Use it to verify that the code entered from the keyboard was converted correctly.

(47 題不用寫，僅參考用！)

47. Write a pseudocode algorithm to build a Huffman tree. Use the alphabet as shown in Table 6-3.

Character	Weight	Character	Weight	Character	Weight
A	7	J	1	S	6
B	2	K	1	T	8
C	2	L	4	U	4
D	3	M	3	V	1
E	11	N	7	W	2
F	2	O	9	X	1
G	2	P	2	Y	2
H	6	Q	1	Z	1
I	6	R	6		

TABLE 6-3 Huffman Character Weights for Project 47