

考生注意：

1. 依次序作答，只要標明題號，不必抄題。
2. 答案必須寫在答案卷上，否則不予計分。
3. 限用藍、黑色筆作答；試題須隨卷繳回。

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1. Given a binary tree with in-order sequence as "ABICDGFHE", and post-order sequence as "AICBGHFED" respectively.
 - a. Rebuild and draw the binary tree. Explain your answer briefly. (15%)
 - b. What is the pre-order sequence of this tree? (10 %)
2.
 - a. How many different binary trees can be made from 5 nodes? Explain your answer. (25%)
 - b. Suppose a binary tree is used to store N nodes, show the possibly minimum tree height. Explain your answer. (10%)
3. For the following matrices chain production,
 $M_1(3 \text{ by } 4) * M_2(4 \text{ by } 2) * M_3(2 \text{ by } 5) * M_4(5 \text{ by } 3) * M_5(3 \text{ by } 4)$, use Dynamic Programming method to find:
 - a. the "best" parenthesization order, (25%)
 - b. and the minimum execution times of scalar multiplications. (15%)Explain your answer step by step.

試

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