

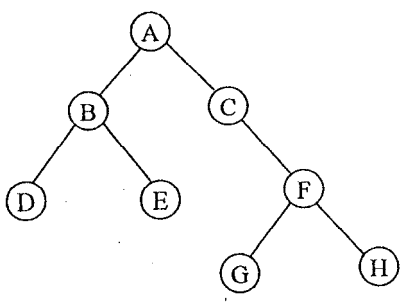
# 淡江大學九十四學年度碩士班招生考試試題 <sup>150-1</sup>

系別：資訊管理學系

科目：資料結構

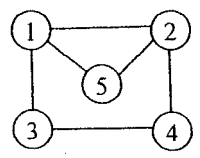
准帶項目請打「V」	
	簡單型計算機
本試題共 / 頁	

- (15%) Define the following terms and give examples to explain your definitions.
  - Spanning tree
  - Linear probing
  - Circular queue
- (25%) Figure out the time complexity of *insertion* for the following data structures and explain your findings.
  - Linked list
  - Ordered linked list
  - Binary search tree (on average)
  - Hash table (e) Ordered array .
- (20%) Compare Merge Sort with Heap Sort. Explain the concept of Heap Sort. Give the algorithm of Heap Sort and use your algorithm to explain how a sequence of numbers (8, 24, 7, 9, 16, 57) can be sorted.
- (20%)
  - Please convert the infix expression below into postfix form.  
 $A * (B / (C - D) + E) ** F - G$
  - Give the results of inorder, postorder and preorder traversals for the following binary tree:



5 (5%) Determine if the tree above is an AVL tree. Explain your reason.

- (15%) For the digraph on the right, please obtain its
  - adjacency matrix representation
  - adjacency list representation
  - adjacency multilist representation.



Before drawing your representations, you should specify the data structure you are using