

國立臺北教育大學 96 學年度學士班三年級轉學考試

學系：資訊科學系

科目：資料結構

一、已知鍵值如下：21, 91, 1, 8, 85, 3, 91, 7 (20%)

1. 試用「選擇排序法」將資料排序，並列出每一回合之結果。
2. 試用「快速排序法」將資料排序，並列出每一回合之結果。

二、下列二元樹之前序追蹤(5%)、中序追蹤(5%)、後序追蹤(5%)結果為何？(如 Figure 1)

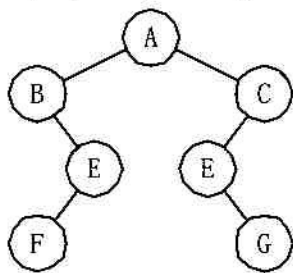


Figure 1

三、已知鍵值如下：42、9、11、71、61、78、28、99，請依建造二元樹方式循序加入所有鍵值，並隨時維持為一棵高度平衡二元樹。(15%)

四、Describe the preorder, inorder, and postorder algorithms for traversing a binary tree. And give an example to illustrate the difference among them. (15%)

五、Construct a max heap and draw the results for the following operations:(a) insert with following order 15, 20, 30, 40, 25, 12, 18; (b) then delete a node from the heap built in (a).(10%)

六、Give two different methods to solve the overflow problem in hash tables. (5%)

七、Write the depth-first and the breath-first spanning trees for the following graph in Figure 2 star vertex 0.(10%)

八、Using Kruskal's and Prim's algorithms to construct the minimum cost spanning trees for the following graph in Figure 2. Write each stage in detail.(10%)

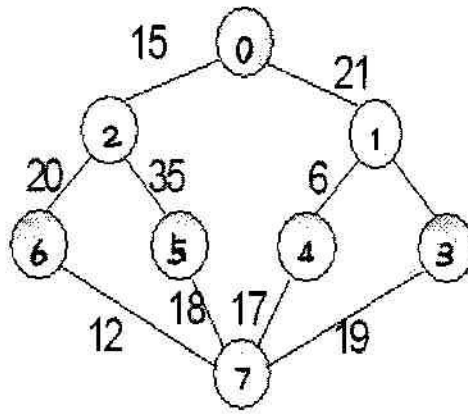


Figure 2