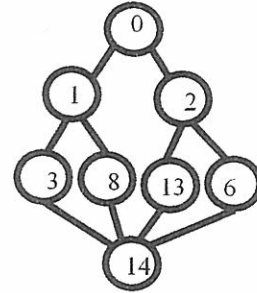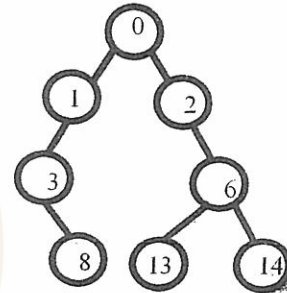共 9 大題。總分 100 分。

(1) 【10 分】 Use a *C-like language* to declare the data structure of "adjacency list" which combines array and pointer structures.

(2) 【10 分】 Show the "adjacency list" representation of the right graph.

(3) 【10 分】 Write a recursive DFS procedure that bases on the "adjacency list" representation to traverse a graph.

(4) 【10 分】 Show the biconnected components of the above graph.

(5) 【10 分】 Show the one-dimensional array representation of the right binary tree.

(6) 【10 分】 Use the above representation to construct the max heap tree of input numbers 26, 5, 77, 1, 61, 11, 59, 15 step-by-step.

(7) 【10 分】 As above, show the step-by-step results to sort the input numbers by the max heap tree.

(8) 【10 分】 Show and prove the computational complexity of the heat sort algorithm.

(9) 【10+10 分】 Use a *C-like language* to show QueueAdd and QueueRemove procedures with the "circular array" representation.