

共 7 大題。總分 100 分。

- (1) [10 points] Use a C/C++/Java language to show the declaration of "Linked List" data structure to represent a sequence of records (Name, Score).
- (2) [20 points] As (1), write a bubble sort function to list the records by the increasing order of their scores. Records with the same score are sorted by their names increasingly.
- (3) [20 points] As (2), assume that records in the linked list are increasingly sorted by their scores and then names. Write an insertion function to insert a new record (NameX, ScoreX) into this linked list.
- (4) [10 points] Use a C/C++/Java language to show the declaration of "1-D Array" data structure to represent the "max heap tree".
- (5) [15 points] As (4), draw step-by-step results for constructing this "max heap tree" (and its "1-D Array") when giving 4, 2, 5, 3, and 1 sequentially.
- (6) [15 points] Show the results to make the pre-order traversal and the branch-first traversal of a binary tree. (May use the final "max heap tree" in (5))
- (7) [10 points] Show the failure function of pattern "abaababaa" applied in the KMP fast string matching algorithm.

試題隨卷繳回