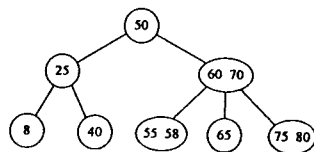


資料結構 試題

(限用答案本作答)

1. List and explain the average, best, and worst cases' time complexity of the bubble sort. (15%)
2. Suppose that A is a two-dimensional integer array in Java language stored in a byte-addressable machine. The address for A[4][2] is decimal 2005 and the address for A[2][3] is decimal 1929. What is the address for A[3][7]? (10%) Given a polynomial $k(y) = y^5 + 8y^3 + y^2 + 2$, how would you use A to represent $k(y)$? (5%)
3. Consider an empty Queue with N slots, and there are N data elements available to be inserted into the Queue which needs R seconds to insert into each element. Also, assume that once an element has been inserted into, the Queue will remove it by taking R seconds if there are no preceding elements in the Queue. What is the average waiting time for a data element to be inserted into and then removed from the Queue? (15%)
4. Compare to representing an expression in infix form, what are the advantages of representing the expression in postfix form? (5%) Given the postfix form: $ab+cde+*+f+$, when evaluating its value with two Queues, describe how these two Queues are operated during the evaluation. (15%)
5. Write a Java program that implements a binary search for finding an integer from a sorted array. (20%)
6. Assume there are five nodes in a binary search tree. How many distinct binary trees could be represented with these nodes? (5%)
7. Given the following B-tree, describe the resulting tree after deleting 58 and 65 consecutively. (10%)



試題完