傳播管理研究所

銘傳大學 94 學年度 碩士班招生考試

資訊管理學系

第二節 （第 1 頁共 1 頁）

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%)

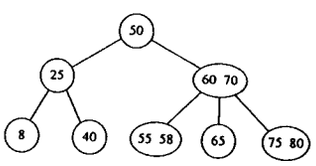
3. Consider an empty Queue with N slots, and there are N data elements available to be inserted into the Queue which needs R seconds to insert into each element. Also, assume that once an element has been inserted into, the Queue will remove it by taking R seconds if there are no preceding elements in 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%)



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