

2007 Paper 1 Question 11

Algorithms

- (a) Describe how Quicksort works, using the following array of numbers as an example: 16, 42, 22, 7, 15, 3. [8 marks]
- (b) What are the worst-case time and space complexities of Quicksort, and how can this worst-case behaviour occur? [3 marks]
- (c) Explain how the worst-case behaviour of Quicksort can be avoided to yield an improved time complexity. Would the changes you describe be useful in practice? [9 marks]