Data Structures and Algorithms

(a) Carefully describe how Shellsort works and state an estimate of its efficiency using big $O$ notation. [8 marks]

(b) Robert Sedgewick suggests that a good sequence of separations used in the algorithm is . . . , 121, 40, 13, 4, 1. Explain why this is a good sequence. Under what circumstances would you recommend a sequence that approaches 1 more rapidly? [4 marks]

(c) Describe how radix sort from the least significant end works and suggest a data structure that could be used in its implementation. [8 marks]