Computer Graphics and Image Processing

(a) Describe an algorithm to draw a straight line using only integer arithmetic. You may assume that the line is in the first octant, that the line starts and ends at integer co-ordinates, and that the function \texttt{setpixel}(x, y) turns on the pixel at location \((x, y)\). \hspace{1cm} [8 marks]

(b) Describe Douglas and Pücker’s algorithm for removing superfluous points from a line chain. \hspace{1cm} [10 marks]

(c) Under what circumstances would it be sensible to employ Douglas and Pücker’s algorithm? \hspace{1cm} [2 marks]