2007 Paper 13 Question 4

Computer Graphics and Image Processing

(*a*) Explain what a *MIPmap* is, how to create one, why one would want to use one, where one would be used, and how one is used. [8 marks]

(*b*) Describe an algorithm that converts a greyscale image into a black and white image using halftoning. Assume that the black and white image has eight times the resolution of the greyscale image in each dimension. [6 marks]

(*c*) Various types of visual artifact ("aliasing") occur if images are rendered using only one sample per pixel.

    (*i*) Describe at least *three* different artifacts that occur. [3 marks]

    (*ii*) Describe a straightforward method to ameliorate these artifacts. [3 marks]