

2001 Paper 12 Question 4

Computer Graphics and Image Processing

(a) Describe the limitations of human vision in terms of:

(i) spatial resolution

(ii) luminance

(iii) colour

and explain the implications that each of these limitations has on the design of display devices. [10 marks]

(b) In image compression we utilise three different mechanisms to compress pixel data:

(i) mapping the pixel values to some other set of values

(ii) quantising those values

(iii) symbol encoding the resulting values

Explain each mechanism, describe the way in which it helps us to compress the image, and describe in what way it affects the visual quality of the resulting (decompressed) image when compared with the original. [10 marks]