

*The following three questions are all worth equal marks.
Answer all three questions.*

1. Different parts of the retina vary in the nature and the strength of their sensitivity to light. Explain how this affects the way we see. (You may wish to give one or two sketches or plots to help explain your answer.)

2. a) Explain the terms *hue*, *saturation*, and *luminance*.

b) The following table gives the relative luminance (brightness) of eight colours produced on an RGB display. Use what you know about photopic luminous efficiency to explain why the luminances take on these values.

Color	Luminance	Color	Luminance
Black	0.00	Yellow	0.89
Red	0.30	Cyan	0.70
Green	0.59	Magenta	0.41
Blue	0.11	White	1.00

- c) Give three examples of complementary colour pairs, explaining why the colours are complementary.

3. a) Cleveland and McGill gave a number of methods for encoding values in a graph, and determined an ordering of the methods. Describe the each of the encoding methods and explain the ordering determined by Cleveland and McGill. What does the ordering say about the production of graphs?

b) Give an example of a visual illusion and explain what causes the illusion.