Chemguide – questions

## UV-VISIBLE SPECTROSCOPY – ELECTROMAGNETIC RADIATION

1. a) Write the expression which relates the speed of light (c), the wavelength of light (λ) and its frequency (ν).

   b) As the wavelength of light increases, what happens to the frequency?

   c) Write the equation which relates the frequency of light to its energy, naming the constant involved.

   d) As the frequency of light increases, what happens to its energy?

   e) As the wavelength of light increases, what happens to its energy? Explain your answer.

   f) The Chemguide page has the following table relating various colours of visible light to their wavelengths.

colour region	wavelength (nm)
violet	380 - 435
blue	435 - 500
cyan	500 - 520
green	520 - 565
yellow	565 - 590
orange	590 - 625
red	625 - 740

   Which of these colours carries   (i) the most energy,

                                          (ii) the least energy?

   g) This diagram (also from the Chemguide page) relates the visible spectrum to the entire electromagnetic spectrum:
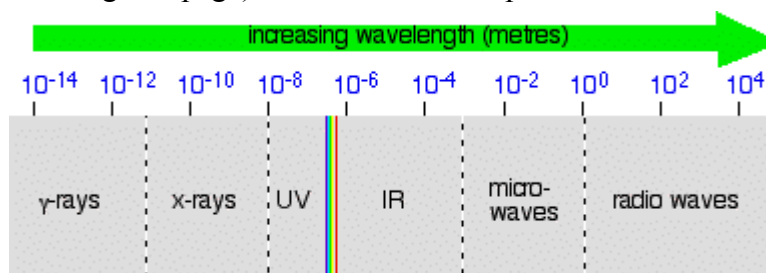
   Which of these types of radiation carries the most energy?