UV-VISIBLE SPECTROSCOPY – ELECTROMAGNETIC RADIATION

1. a) $c = \lambda\nu$

   b) Frequency falls as the wavelength increases.

   (You can think of this in two ways. The speed of light is constant, so if one of the things on the right-hand side increases, the other must decrease. Or you can rearrange the expression to give $\nu = c/\lambda$. If λ increases, ν must decrease. However you do it, you must be comfortable with this relationship!)

   c) $E = h\nu$ h is Planck's constant.

   d) Energy increases as frequency increases. That's a direct consequence of the equation.

   e) As the wavelength increases, the frequency decreases and therefore the energy also decreases.

   f) (i) violet

   (ii) red

   g) γ-rays. γ-rays have the shortest wavelength, and therefore the highest frequency and the greatest energy.

   You should have found these questions trivial! If you didn't, don't leave this page until you have got it sorted out.