

- Moseley discovered experimentally in 1913 that the atomic number,  $Z$ , of an element is inversely proportional to the square root of the wavelength,  $\lambda$ , of fluorescent X-rays emitted when an electron drops from the  $n = 2$  to the  $n = 1$  shell.

$$\text{i.e. } \frac{1}{\sqrt{\lambda}} = kZ$$

What element would emit such X-rays with a wavelength one-quarter that of zirconium?

**Marks**  
**3**

Answer:

- Many plants are green due to their high chlorophyll content. Draw on the diagram below the absorption spectrum of a green pigment such as chlorophyll.

**2**

