6 The lower energy levels of electrons in a hydrogen atom are given in Fig. 6.1. The figure is not drawn to scale.

Fig. 6.1 also shows some energy changes between different levels.

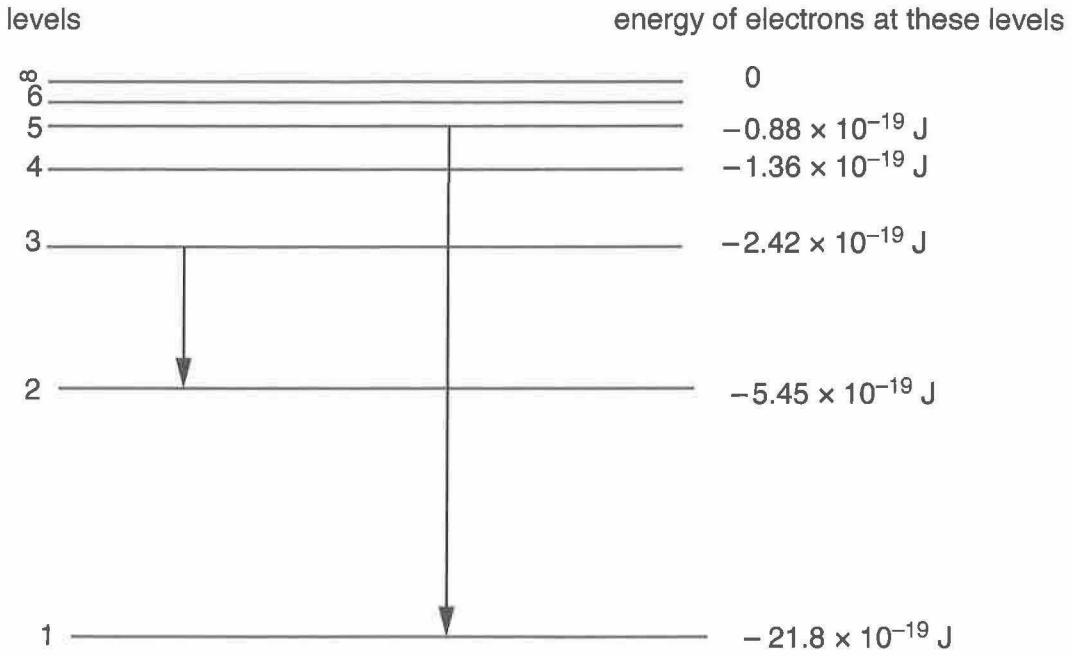

Fig. 6.1 (not to scale)

(a) The spectrum produced by hydrogen is a line spectrum.

Use Fig. 6.1 to explain why the spectrum is a line spectrum rather than a continuous spectrum.

.....

.....[2]

(b) **(i)** Light is emitted when an electron falls from level 3 to level 2. Calculate the frequency and the wavelength of this light.

frequency = ... Hz

wavelength = ... m

[3]

(ii) Suggest the colour of this light.

colour .....[1]

(iii) Suggest the type of radiation emitted when any electron falls to level 1.

.....[1]

[Total: 7]