

- 1 Fig. 2.1 gives information on three lines observed in the emission spectrum of hydrogen atoms.

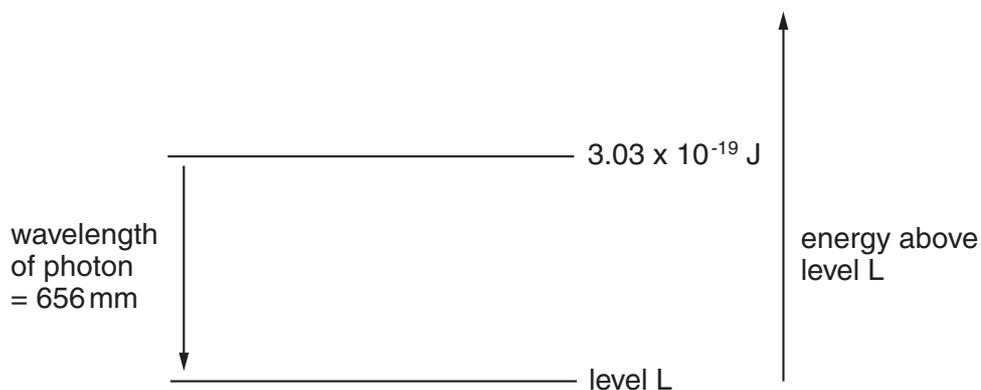
wavelength/nm	photon energy / $10^{-19}$ J
656	3.03
486	.....
1880	1.06

**Fig. 2.1**

- (a) Complete Fig. 2.1 by calculating the photon energy for the wavelength of 486 nm.

[2]

- (b) Fig. 2.2 is a partially completed diagram to show energy levels of a hydrogen atom.



**Fig. 2.2**

- On Fig. 2.2 draw one further labelled energy level, and complete the diagram with arrows to show the energy changes for the other two wavelengths.

[3]