

Solutions

Each answer shows the steps, then the **result**.

2.1

- the energy levels are discrete, so only certain photon energies (and wavelengths) can be emitted or absorbed

2.2

- an emission spectrum is bright lines from emitted photons; an absorption spectrum is dark lines where photons are absorbed

2.3

- each element has a unique pattern of lines

3.1 B

3.2 B

3.3

(a)

- an absorption spectrum

(b)

- hydrogen is present in the star's outer layers, absorbing those wavelengths