

2024 Ph H1 Q16

Section: Particles and Waves

Topic: Spectra

Question Summary

Dark lines in an absorption spectrum occur because... (multiple choice options given).

Worked Solution

Absorption spectrum: produced when electrons in atoms absorb photons of specific energies.

Electrons absorb photons and move from lower to higher energy levels.

This removes those photon energies from the continuous spectrum
→ dark lines.

Correct statement: electrons move from lower to higher levels by absorbing photons.

Final Answer

E — Electrons move from lower to higher energy levels by absorbing photons

Revision Tips

- Absorption spectra = dark lines because specific photon energies are absorbed.
- Emission spectra = bright lines from photons emitted when electrons drop to lower levels.
- Careful: 'absorb photons' (not electrons!) is the key phrase.