

Question Number	Answer	Mark
14	<p>For the electron (in the atom) to move from -13.6eV to -1.5eV requires 12.1eV (1)</p> <p>0.2eV/ remaining (kinetic) energy left for the (incoming) electron (1)</p> <p>Idea that <u>energy</u> of a photon is transferred to a single electron Or Idea that photon can only excite an electron if it matches the energy difference between levels Or Idea that photons give all of their energy (or none at all) (1)</p> <p>Photon energy is not exactly 12.1eV so electron/atom remains at the -13.6eV level Or There is no transition equivalent to 12.3 eV Or There is no -1.3 eV energy level (1)</p> <p>(Ignore references to work function or photons being emitted) (MP1 – award this mark if 12.1eV is seen) (MP3 – do not award simply for saying “one photon interacts with one electron”) (MP4 – Award if candidates make it clear that 12.1eV is not equal to 12.3eV in an argument to explain why photons cannot produce the change in energy levels for the electron)</p>	4
	Total for Question 14	4