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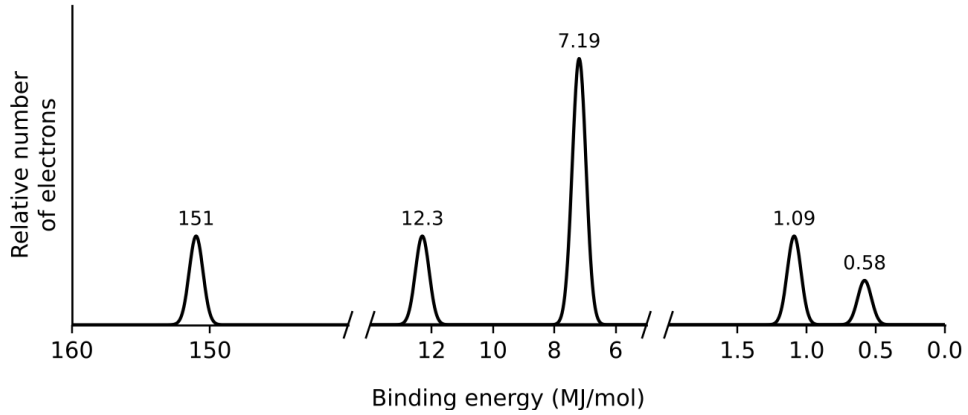
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1.6 Photoelectron Spectroscopy

AP Chemistry

Binding energy increases to the left on every spectrum. Peak height shows the relative number of electrons.

1. The photoelectron spectrum of an element is shown. (a) Write its electron configuration and identify the element. (b) Which peak represents the valence electrons with the lowest binding energy? Explain.

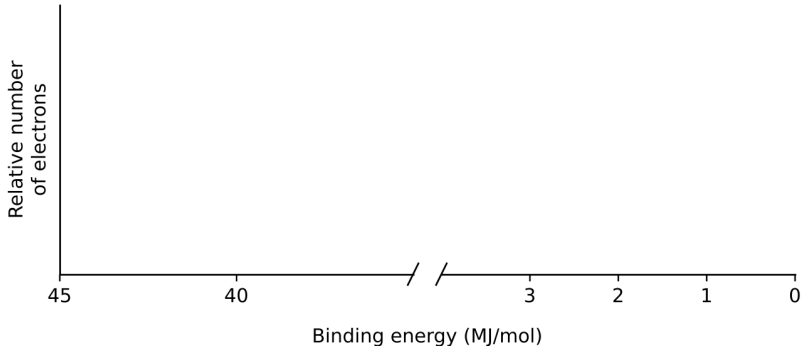


2. Predict the photoelectron spectrum of calcium. State (a) how many peaks it has, (b) the relative height of each peak, and (c) which peak has the lowest binding energy.

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3. The 1s peak of potassium is at 347 MJ/mol. Will the 1s peak of calcium be at a higher or lower binding energy? Explain using Coulomb's law.

4. Nitrogen's peaks are at 39.6, 2.45, and 1.40 MJ/mol. Sketch the photoelectron spectrum of nitrogen on the axes, with correct relative peak heights.



5. The 2p peak of neon is at 2.1 MJ/mol, but the 2p peak of sodium is at 3.7 MJ/mol. Explain why sodium's 2p electrons have a higher binding energy.

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