Cheatography

Chapter 7 Short Answer Cheat Sheet

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Describe ionization energy trends:

Ionization energy is the minimal energy required to remove an electron from a neutral atom. Since, from left to right, the effective nuclear charge increases, the valence electrons are drawn closer to the nucleus. Hence, it becomes more difficult to extract electrons.

Principles

Aufbau	fill lowest to highest levels with electrons
Hund's	↑ ↑ ↑ and then continue to fill rest of the electrons in
Pauli	not same spin in one orbital

Electron Affinity

The energy change that occurs when an electron is added to a gaseous atom or ion

Describe the periodic trend for transition metals

-atomic size is strongly correlated to Z_{eff}

-electrons are added to the (n-1)d orbitals and become part of the core electrons which are capable of screening the s valence electrons

-the increase in Z : larger increase in S for the s valence electrons

Why are the electron affinities of 2B > 0?

The group 2B metals have complete (n-1)d subshells. An extra electron would occupy the p subshell and be shielded by s and (n-1)d electrons. This is not a lower energy state than the neutral atom and a free electron.

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