

LECTURE 8

1. Consider a neutral atom with 8 distinct electron binding energies: -14 eV, -28 eV, -94 eV, -218 eV, -293 eV, -1730 eV, -1921 eV, and -14326 eV.
 - (a) Name all of the possible ground state atoms that could have these binding energies (without looking up any values).
 - (b) Identify the binding energies of the 1s, 2s, and 3s orbitals in this atom.
 - (c) If this atom is subjected to photoelectron spectroscopy using 0.564 nm incident X-rays, with what maximum kinetic energy (in eV) could a 3s electron emerge?

Additional Book Problems:

Atkins and Jones, Chemical Principles, fifth edition:

Chapter 1.17, Self-Test 1.14A&B (problem 1.23, 1.24)

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5.111 Principles of Chemical Science
Fall 2014

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