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?

   (a) Ga, Ge, As, Se, Br, or Kr.
   (b) 1s: -14326 eV; 2s: -1921 eV; 3s: -293 eV
   (c) K.E. $=1.91*10^3$ eV

   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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