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AP Chemistry – I.E. & E.A. – 8

Name _____Per ___

1. Write an equation showing the fourth ionization for Rhodium.

2. Why does Lithium have a larger first ionization energy than Sodium?

3. What is the trend in first ionization energies as you move across the fourth period from K to Kr? How does this trend compare with atomic radii?

4. Use electron configuration and effective nuclear charge to explain which element has the larger first ionization energy, Sr or Cd.

5. Write the electron configurations for the following ions, and determine which (if any) have noble-gas configurations.
(a) Mn^{3+}

(b) Se^{2-}

(c) Sc^{3+}

(d) Ru^{2+}

(e) Tl^{+}

(f) Au^{+}

6. Identify the element whose ions have the following electron configurations:

(a) a 3^+ ion with [Ar] $3d^3$

(b) a 2^+ ion with [Kr] $5s^2$ $4d^{10}$

7. While the electron affinity of Bromine is a negative quantity, it is positive for Krypton. Use the electron configurations of the two elements to explain this difference.

8. Arrange the following pure solid elements in order of increasing electrical conductivity: P, Ag and Sb. Explain the reasoning you used.

9. Why is Potassium more reactive with water than Lithium?

10. Explain why the ionization energy of hydrogen is closer to the values for the halogens than for the alkali metals.

11. Why is Fluorine a more reactive non-metal than Oxygen?