

CH301 Fall 2009 Practice Quiz 2

1. What is the ground state electron configuration for silver (Ag) ?
  - a.  $[\text{Kr}]4d^{10} 5s^1$
  - b.  $[\text{Kr}]5s^2 4d^9$
  - c.  $[\text{Kr}]5s^2 5d^9$
  - d.  $[\text{Kr}]3d^9 4s^1$
2. Calculate the effective nuclear charge experienced by the valence electrons in a neutral germanium (Ge) atom.
  - a. 14
  - b. 4
  - c. 2
  - d. 10
3. Arrange the following atoms in order of increasing electron affinity: Na, N, Cl, Cu
  - a.  $\text{Cu} < \text{Cl} < \text{Na} < \text{N}$
  - b.  $\text{Na} < \text{Cu} < \text{N} < \text{Cl}$
  - c.  $\text{Cl} < \text{Cu} < \text{Na} < \text{N}$
  - d.  $\text{N} < \text{Na} < \text{Cu} < \text{Cl}$
4. Arrange the following in order of decreasing ionic radius:  $\text{Cu}^+$ ,  $\text{Ga}^{3+}$ ,  $\text{Ge}^{4+}$ ,  $\text{Zn}^{2+}$ .
  - a.  $\text{Cu}^+ > \text{Zn}^{2+} > \text{Ge}^{4+} > \text{Ga}^{3+}$
  - b.  $\text{Cu}^+ > \text{Zn}^{2+} > \text{Ga}^{3+} > \text{Ge}^{4+}$
  - c.  $\text{Zn}^{2+} > \text{Cu}^+ > \text{Ga}^{3+} > \text{Ge}^{4+}$
  - d.  $\text{Ge}^{4+} > \text{Ga}^{3+} > \text{Zn}^{2+} > \text{Cu}^+$
5. What is the electronic configuration of gold (Au)?
  - a.  $[\text{Xe}] 6s^1 5d^{10}$
  - b.  $[\text{Xe}] 6s^2 4f^{14} 5d^9$
  - c.  $[\text{Xe}] 6s^2 4f^{13} 5d^{10}$
  - d.  $[\text{Xe}] 6s^1 4f^{14} 5d^{10}$
6. Which atom, oxygen or nitrogen, has the higher ionization energy?
  - a. Nitrogen, because it has a lower effective nuclear charge
  - b. Nitrogen, because it has a stable, half-filled p subshell and removing an electron decreases its stability
  - c. Oxygen, because it has a higher effective nuclear charge
  - d. Oxygen, because it does not have a stable, half-filled p subshell and removing an electron increases its stability.