

Quiz for Video 10 – Coordination Chemistry

1. What is the definition of a ligand in a coordination compound?
 - a. The metal at the center of the complex ion
 - b. The complex ion itself
 - c. A species attached to the central metal
 - d. The counterions
2. What is the ground state electron configuration for Zinc (Zn)?
 - a. $[\text{Ar}] 4s^2 3d^{10}$
 - b. $[\text{Ar}] 3d^{10}$
 - c. $[\text{Ar}] 4s^2 3d^8$
 - d. $[\text{Ar}] 4s^4 3d^8$
3. What is the “d-count” of a transition metal?
 - a. The row of the periodic table it resides in
 - b. The number of adjacent transition metals on the periodic table
 - c. Its number of d-electrons
 - d. Its number of protons
4. What determines which electron is lost when a transition metal forms a cation?
 - a. The highest number on an orbital
 - b. The highest energy orbital
 - c. The most closely held electron
 - d. The size of the transition metal
5. Why do transition metals lose from 4s before the 3d orbital?
 - a. They always lose from 3d
 - b. They only lose from 4s if there are more than 2 electrons in 4s
 - c. Because 3d is higher energy when both are occupied
 - d. Because 4s is higher energy when both are occupied
6. What is the electron configuration for the Cu^{2+} ion?
 - a. $[\text{Ar}] 4s^2 3d^7$
 - b. $[\text{Ar}] 4s^1 3d^8$
 - c. $[\text{Ar}] 3d^9$
 - d. $[\text{Ar}] 4s^2 3d^9$
7. What is unique about transition metals?
 - a. They often take different charges
 - b. They often take different oxidation numbers
 - c. They often have different colors
 - d. All of the above
8. In the coordination compound: $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]_2\text{SO}_4$ what is the role of sulfate (SO_4^{2-})?
 - a. Ligand
 - b. Central Metal
 - c. Counterion
 - d. Precipitate
9. In the coordination compound: $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]_2\text{SO}_4$ what is the role of ammonia (NH_3)?
 - a. Ligand
 - b. Central Metal
 - c. Counterion
 - d. Precipitate
10. In the coordination compound: $[\text{Cr}(\text{NH}_3)_4\text{Cl}_2]_2\text{SO}_4$ what is the role of chromium (Cr)?
 - a. Ligand
 - b. Central Metal
 - c. Counterion
 - d. Precipitate