Inorganic Chem – Practice questions

1. Which process is energetically favorable: a) adding an electron to K to form K-; or b) losing an electron to form K+? Explain.

2. Using Slater’s rules, determine the effective nuclear charge for a 4s and 3d electrons in vanadium and V2+. Discuss the relative sizes of the atomic/ionic radii based on your result.

3. Compare the electron affinity for group 17 elements. Explain the lack of trend.

4. Which of Na or Cl will have the greatest first ionization energy? Which will have the greatest second ionization energy? Explain.

 5. Why is the second ionization energy of Cr higher than that of Mn?

6. Give the ground state electron configuration of a)Ca; b) Ga3+ c) Bi and d) Pb2+. Identify each as paramaganetic or diamagnetic.

7. Why do niobium and tantalum have the same atomic radii?

8. Write the chemical equation illustrating the second electron affinity for oxygen. Do you expect this process to be exothermic or endothermic. Explain.

9. Put the following atoms or ions in order of increasing size F-, Cl, P, S, Pb and Sn. Explain briefly.