

*Unless otherwise specified, each answer is worth 1 point.
Please draw a box around your final answers.*

1. How many valence electrons does each of the following atoms have?

- a. C..... **4**
- b. Mg..... **2**
- c. O..... **6**
- d. S..... **6**

2. Write the complete electron configuration for each of the following. You may use the [noble gas] convention.

- a. C..... **$1s^2 2s^2 2p^2$**
- b. Na..... **$[\text{Ne}] 3s^1$**
- c. Ti (titanium)..... **$[\text{Ar}] 4s^2 3d^2$**
- d. Cr..... **$[\text{Ar}] 4s^1 3d^5$**

3. In each set, which ion or atom has the largest radius? (*Circle your answer for each.*)

- a. **B** N F
- b. Li Na **K**
- c. Ca²⁺ **P³⁻** S²⁻

4. In each set, which ion or atom has the highest ionization energy (to remove the "next" electron)? (*Circle your answer for each.*)

- a. B N **F**
- b. **H** Na K
- c. Na⁺ Mg²⁺ **Al³⁺**

