

\* III-2 \_\_\_\_C \_\_\_\_NC

**Chemistry 151**  
**Worksheet 4**

Name: \_\_\_\_\_

A. (3.0 pts.) Give the electron configuration by subshells for each of the following atoms or ions.

\*1.  ${}_{13}\text{Al}$  \_\_\_\_\_ 2.  ${}_{6}\text{C}$  \_\_\_\_\_

3.  ${}_{33}\text{As}^{3-}$  \_\_\_\_\_ 4.  ${}_{40}\text{Zr}$  \_\_\_\_\_

5.  ${}_{22}\text{Ti}^{2+}$  \_\_\_\_\_ 6.  ${}_{35}\text{Br}$  \_\_\_\_\_

B. (3.0 pts.) Give the quantum numbers for the last electron placed in the orbital configuration for each of the following

${}_{14}\text{Si}$        $\frac{\text{n}}{\text{_____}}$        $\frac{\text{l}}{\text{_____}}$        $\frac{\text{m}_l}{\text{_____}}$        $\frac{\text{m}_s}{\text{_____}}$

${}_{20}\text{Ca}$

${}_{24}\text{Cr}$

C. (2.0 pts.) Given the set of the quantum numbers for the last electron placed in a subshell configuration, place the outermost subshell configuration in the blank.

\_\_\_\_\_       $\frac{\text{n}}{4}$        $\frac{\text{l}}{2}$        $\frac{\text{m}_l}{0}$        $\frac{\text{m}_s}{+1/2}$

\_\_\_\_\_      2      1      +1      -1/2

D. (2.0 pts.) Fill in the blanks for each of the following.

1. When  $l = 1$ , the subshell is a(n) \_\_\_\_\_ subshell.
2. When  $n = 3$ , two possible values of  $l$  are \_\_\_\_\_ and \_\_\_\_\_.
3. An f orbital can hold \_\_\_\_\_ electrons.
4. A p subshell can hold \_\_\_\_\_ electrons.