

- 1) What elements are composed of atoms having the following electron configurations? Also determine # valence electrons and number of unpaired electrons for each.

	Element	# of Valence electrons	# of unpaired electrons
a) $1s^2 2s^2 2p^6 3s^2 3p^3$			
b) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$			
c) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^4$			
d) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$			
e) $[\text{Kr}] 5s^2 4d^{10}$			
f) $[\text{Xe}] 6s^2 4f^{14} 5d^3$			

- 2) Write the Noble Gas Notation ground-state electron configurations of the following elements:

- Chromium (#24) \_\_\_\_\_
- Molybdenum (#42) \_\_\_\_\_
- Tellurium (#52) \_\_\_\_\_
- Platinum (#78) \_\_\_\_\_
- Radon (#86) \_\_\_\_\_
- Bohrium (#107) \_\_\_\_\_

- 3) Why does the 4s sublevel fill with electrons before electrons are found in the 3d sublevel?

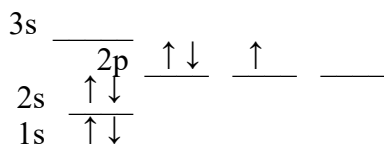
- 4) The following are **not valid** ground-state electron configurations. **Circle the error(s)** in each configuration and **correct what is wrong**. There may be multiple errors.

- Al (#13):  $1s^2 2s^2 2p^6 3s^3$  \_\_\_\_\_
- S (#16):  $1s^2 2s^2 2p^6 3s^3 2d^4$  \_\_\_\_\_
- Br (#35):  $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^5$  \_\_\_\_\_
- Zr (#40):  $[\text{Ar}] 4s^2 3d^{10} 4p^5 5s^2 5p^2$  \_\_\_\_\_
- Rf (#104):  $[\text{Ra}] 5f^{14} 6d^1$  \_\_\_\_\_
- Xe (#54):  $[\text{Xe}]$  \_\_\_\_\_

More on back...

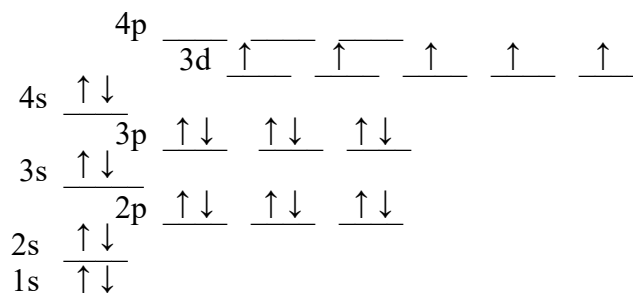
5) Shown here are arrow diagrams for the elements named. Each diagram is incorrect in some way. Explain the error in each and *correct each diagram*.

a) Element: Nitrogen



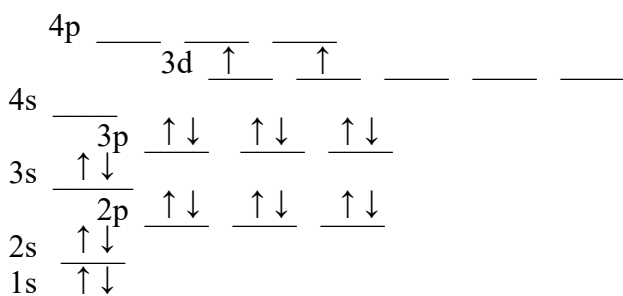
**Explain error:**

c) Element: Iron



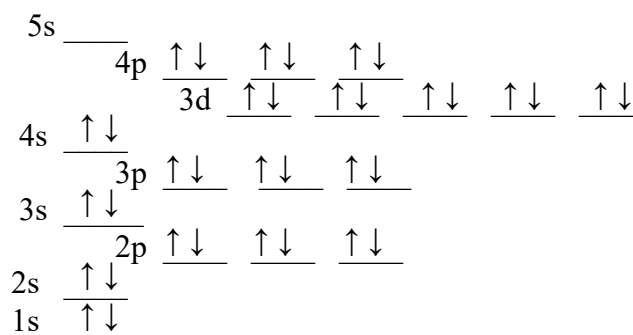
**Explain Error:**

b) Element: calcium



**Explain error:**

d) Element: bromine



**Explain Error:**