

1. The electron configuration for an atom of Ca in the ground state is:

A. $1s^2 2s^2 2p^2 3s^2 3p^3 4s^2$		Incorrect. Too few electrons in the 2p and 3p sublevels.
B. $1s^2 2s^2 2p^{10} 3s^2 3p^4$		Incorrect. Too many electrons in the 2p sublevel.
C. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$	Correct. All the sublevels are included with the appropriate number of electrons in them.	
D. $1s^2 2s^2 3s^2 3p^6 3d^8$		Incorrect. 2p sublevel is not included.

2. The element with the ground state electron configuration of $1s^2 2s^2 2p^6 3s^2 3p^4$ is:

A. Argon		Incorrect. Argon is in the 3p sublevel, but has 6 electrons not 4.
B. Chromium		Incorrect. Chromium is in the 3d sublevel which is not included in this configuration.
C. Oxygen		Incorrect. Oxygen is in the 2p sublevel whereas this configuration goes up to the 3p sublevel.
D. Sulfur	Correct. Sulfur has 4 electrons in the 3p sublevel, and has 16 electrons total.	

3. What type(s) of sublevels, or orbitals, are found in the third energy level?

A. s only		Incorrect. The first energy level contains only s sublevels. The third energy level has more.
B. s and p only		Incorrect. The second energy level contains only s and p sublevels. The third energy level has more.
C. s, p, and d only	Correct. The third energy level does contain s, p, and d sublevels, but not an f sublevel.	
D. s, p, d, and f		Incorrect. The third energy level does contain s, p, and d sublevels, but not an f sublevel.

4. Which element contains seven electrons in its 4th energy level?

A. Br	Correct. Bromine has 7 electrons in the 4 th energy level with 2 in the 4s sublevel and 5 in the 4p sublevel. Its electron configuration is $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^5$	
B. Fr		Incorrect. Francium is in the seventh energy level. Its electron configuration is $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^6 7s^1$.
C. Mn		Incorrect. Manganese is the 7 th element in the fourth row of the periodic table, however only 2 of its electrons are in the 4 th energy level. Its electron configuration is $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$.
D. N		Incorrect. Nitrogen has 7 electrons total, not 7 in the 4 th energy level. Its electron configuration is $1s^2 2s^2 2p^3$.

5. Which ground state atom has a partially filled second energy level?

A. H		Incorrect. Hydrogen has a partially filled first energy level.
B. He		Incorrect. Helium has a filled first energy level.
C. Li	Correct. Lithium has a partially filled second energy level with only 1 electron in the 2s sublevel.	
D. Ne		Incorrect. Neon has a full second energy level.