

Problem Set 4: The Periodic Table, Isotopes and Electron Configuration

1. What element resides in group 7 and period 2?
2. What is the collective name for the group 8A elements?
3. What is the atomic mass of nitrogen?
4. How many protons does a lithium atom have?
5. What is the atomic number of magnesium?
6. A neutral atom has an atomic number of 7 and a mass number of 15. How many protons, neutrons and electrons does it have? Write the element symbol to represent this isotope correctly. Include the atomic and mass numbers.
7. Write the element symbol to represent the following isotopes.
 - a. C-14
 - b. Ba-138
 - c. F-19
 - d. Ba-138
8. How many protons, neutrons and electrons are in the following:
 - a. ${}^7\text{Li}$
 - b. ${}^{31}\text{P}$
 - c. ${}^{39}\text{K}^+$
 - d. ${}^{41}\text{Ca}^{2+}$
 - e. ${}^2\text{He}$
 - f. ${}^3\text{H}$
 - g. ${}^{16}\text{O}^{2-}$
9. Write the electron configuration for the following neutral atoms.
 - a. C
 - b. O
 - c. Na
 - d. Cl
10. How many valence electrons do each of the following neutral atoms have?
 - a. C
 - b. O
 - c. Na
 - d. Cl
11. How many valence electrons do the halogens have?