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Chemistry

Quiz Review: Types of Bonds, Ionic Compounds

1. Consider the elements oxygen, O, and sulfur, S.
 - a. How many electrons does an atom of each of these elements have?
 - b. Draw shell models for atoms of each of these elements.
 - c. How many valence electrons do each of these elements have?
 - d. How many core electrons do each of these elements have?
 - e. Why are the properties of oxygen and sulfur similar?
2. Provide the following information for element number 20.
 - a. The element's name, symbol, and group number.
 - b. The number of protons in the nucleus.
 - c. The total number of electrons in a neutral atom.
 - d. The number of valence electrons.
 - e. The number of core electrons.
 - f. Draw the shell model for element 20. In another color, show the formation of its ion.
3. How many electrons, protons, and neutrons does Br^{1-} have if its mass is 71 amu?
4. Which noble gas is closest to sodium on the periodic table? What must happen to a sodium atom for it to have an electron arrangement like that of a noble gas?

Name: _____ Period: _____

5. When potassium loses an electron to become a potassium ion with a +1 charge, it ends up with the same *electron arrangement* as argon. Why doesn't it become an argon atom?

6. Define cation and anion. Provide an example of each.

7. Draw a shell model for phosphorus. In another color, show the formation of its ion.

8. Explain why the following compounds do not form.
 - a. LiS

 - b. KP_2

9. For each compound, show the formations of the ions by drawing the shell models and transferring the electron(s) from one element to the other (showing the formation of their ions). Then write the cation and anion with the appropriate charge. Finally, write the chemical formula for each compound.

Example: sodium fluoride: $Na^{+1}, F^{-1} \rightarrow NaF$

 - a. Calcium fluoride

 - b. Potassium sulfide

 - c. Aluminum nitride

