



Intro to Chemistry Test - Lesson 5 – Ionic Bond

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1. The fact that water flows downhill, hot things cool off, and atoms bond to other atoms are all examples of:

- A) atoms seeking new sources of energy
- B) atoms attracting and repelling each other
- C) atoms shedding excess energy
- D) atoms being attracted to other atoms

2. Why is sodium so willing to give its single valence electron in ring 3 to chlorine?

- A) Even though sodium's single valence electron is spinning and creating a magnetic field around itself, there is no other electron in ring 3 to be attracted to.
- B) The electrons in sodium's ring 1 and 2 are repelling the single valence electron in ring 3 away from the nucleus.
- C) The valence electron in ring 3 is far enough away from sodium's nucleus that it doesn't feel as much attraction to sodium's nucleus as the inner electrons do.
- D) All three statements are true.

3. Which is the biggest obstacle that sodium has to overcome in order to give its valence electron to chlorine?

- A) Sodium has to get close to chlorine, but chlorine's electrons and sodium's electrons are repelling each other.
- B) Both sodium and chlorine are electrically neutral, so they have no attraction for each other.
- C) It takes a significant amount of energy to remove sodium's valence electron and give it to chlorine.
- D) Almost all the sodium and chlorine atoms are moving so fast that there's not enough time for sodium to give its valence electron to chlorine.

4. A negative ion _____.

- A) can only be formed by adding or removing an electron from an atom's outer ring
- B) is no longer considered an atom
- C) can be formed by moving an electron from an atom's inner ring to its outer ring
- D) is missing a positive charge in its nucleus

5. What happens when sodium gives its single valence electron to chlorine?

- A) Sodium becomes a negative ion and chlorine becomes a negative ion.
- B) Sodium becomes a positive ion and chlorine becomes a negative ion.
- C) Sodium becomes a negative ion and chlorine becomes a positive ion.
- D) Sodium becomes a positive ion and chlorine becomes a positive ion.

6. The reason sodium and chlorine bond together after sodium gives chlorine its single valence electron is _____.

- A) sodium's ring 3 and chlorine's ring 4 are now overlapping
- B) sodium's magnetic spin is opposite that of chlorine's magnetic spin
- C) sodium wants to take back its valence electron from chlorine
- D) sodium became positive and chlorine negative

7. True or false: The properties of each atom help predict the properties of the molecule formed when the two atoms bond to each other.

- A) True
- B) False

8. Which statement is true?

- A) Valence electrons in the outer ring of an atom can be removed and brought to another location.
- B) Only valence electrons can be removed and brought to another location, not electrons from the inner rings.
- C) Electrons spin as they circle the nucleus and create a magnetic field around themselves.
- D) All three statements are true.

9. Which statement is true?

- A) Two electrons circling a nucleus pair up because they spin in opposite directions and create opposite magnetic fields that pull the electrons together.
- B) Every pair of electrons in a ring tries to keep as far away as possible from every other pair of electrons.
- C) Electrons can be induced by a group of approaching electrons to back away and in doing so, leave behind an electrically positive space.
- D) All three statements are true.

The answer is D: all three statements about electrons are true.