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| CHEMISTRY | CODE: SCS21A |
| 2014-2015 SCHOOL YEAR | INSTRUCTOR: Ms. Bui |
| CLASSROOM: 510 | LAB ROOM: 506 |

**ELECTRONS**

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| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Subject: Chemistry |

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| ***READ***1. Each electron has its own distinct amount of energy.
2. The electrons reside in the electron cloud.
3. The electron cloud is divided into energy levels (also known as shells). The lowest energy level is closest to the nucleus.
4. Electrons are naturally in ground state (lowest energy state).
5. When a specific amount of energy is absorbed (gain), the electron moves to a higher energy state (excited state). Example – jumps from 2nd energy level to 3rd energy level.
6. The excited state is temporary. After a specific amount of energy is released (emitted), the electrons return to a lower energy state.
7. Bright line spectrum is emitted when the electrons release energy and return to a lower energy state. In other words, light is emitted when electrons return from a higher energy state to a lower energy state.
8. Electron Configuration represents the distribution of all electrons for an element.
	* The electron configuration shown on the periodic table is at ground state.
	* Adding the number shown in the electron configuration will give the number of electrons for an element. Example: 2-7-2 = 11 electrons
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1. Which electron configuration represents the electrons of a chlorine (Cl) atom in a ground state?
	1. 1-8-8
	2. 2-8-8
	3. 2-7-8
	4. 2-8-7
2. Which electron configuration represents a bromine (Br) atom in an excited state?
	1. 2-7-18-6
	2. 2-7-18-7
	3. 2-7-18-8
	4. 2-8-18-7
3. An electron in a silver atom moves from the third shell to the fourth shell. This change is a result of
	1. Absorbing energy
	2. Releasing energy
	3. Gaining an electron
	4. Losing an electron
4. When an excited electron in an atom moves to the ground state, the electron
	1. Absorbs energy as it moves to a higher energy state
	2. Absorbs energy as it moves to a lower energy state
	3. Emits energy as it moves to a higher energy state
	4. Emits energy as it moves to a lower energy state
5. The bright-line spectrum of copper is produced when energy is
	1. Absorbed as electrons move from higher to lower electron shells
	2. Absorbed as electrons move from lower to higher electron shells
	3. Released as electrons move from higher to lower electron shells
	4. Released as electrons move from lower to higher electron shells
6. During a flame test, a lithium salt produces a characteristic red flame. This red color is produced when electrons in excited lithium atoms
	1. Are lost by the atoms
	2. Are gained by the atoms
	3. Return to lower energy states within the atoms
	4. Move to higher energy states within the atoms
7. What must occur when an electron in an atom returns from a higher energy state to a lower energy state?
	1. A specific amount of energy is released.
	2. A random amount of energy is released.
	3. The atom undergoes transmutation.
	4. The atom spontaneously decays
8. The diagram below represents the bright-line spectra of four elements and a bright-line spectrum produced by a mixture of three of these elements.



Which element is NOT present in the mixture?

* 1. A
	2. D
	3. X
	4. Z
1. Compared to the energy and charge of the electrons in the first shell of a Be atom, the electrons in the second shell of this atom have
	1. Less energy and the same charge
	2. Less energy and a different charge
	3. More energy and the same charge
	4. More energy and a different charge
2. An atom in an excited state has an electron configuration of 2-7-6
	1. Explain, in term of subatomic particles why this excited atom is electrically neutral.
	2. Write the electron configuration of this atom in the ground state.