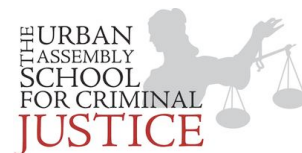


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Chemistry ~ Ms. Hart

Class: Anions or Cations



4.3 Classwork - Valence Electrons and Lewis Dot Diagrams

- What is the total number of valence electrons in an atom of germanium in the ground state?
(1) 8
(2) 2
(3) 14
(4) 4
- Which element has an atom in the ground state with a total of three valence electrons?
(1) Aluminum
(2) Lithium
(3) Phosphorous
(4) Scandium
- Which symbol represents an atom in the ground state with the most stable valence electron configuration?
(1) B
(2) Li
(3) O
(4) Ne
- Which electron configuration represents the electrons of an atom in an excited state?
(1) 2-1
(2) 2-8-7
(3) 2-7-4
(4) 2-4
- An atom of aluminum in the ground state and an atom of gallium in the ground state have the same:
(1) mass
(2) electronegativity
(3) total number of protons
(4) total number of valence electrons
- Which set of symbols represents atoms with valence electrons in the same electron shell?
(1) Ba, Br, Bi
(2) Sr, Sn, I
(3) O, S, Te
(4) Mn, Hg, Cu
- Which element has chemical properties that are most similar to the chemical properties of sodium?
(1) Mg
(2) K
(3) Se
(4) Cl
- What is the total number of valence electrons in an atom of sulfur in the ground state?
(1) 6
(2) 8
(3) 3
(4) 4
- An atom in the ground state contains 8 valence electrons. This atom is classified as a
(1) metal
(2) semimetal
(3) noble gas
(4) halogen
- Which electron-dot symbol correctly represents an atom of its given element?

S • • • • • Al • • • Li • • • • B •
- As the atoms of the Group 17 elements in the ground state are considered from top to bottom, each successive element has
(1) the same number of valence electrons and similar chemical properties
(2) the same number of valence electrons and identical chemical properties
(3) an increasing number of valence electrons and similar chemical properties
(4) an increasing number of valence electrons and identical chemical properties
- The atoms of the elements in Group 2 have the same
(1) mass number
(2) atomic number
(3) number of protons
(4) number of valence electrons

4.3 Homework - Valence Electrons and Lewis Dot Diagrams

- Compared to the atoms of nonmetals in Period 3, the atoms of metals in Period 3 have
 - fewer valence electrons
 - more valence electrons
 - fewer electron shells
 - more electron shells
- What is the total number of valence electrons in a calcium atom in the ground state?
 - 8
 - 2
 - 18
 - 20
- Which list consists of elements that have the most similar chemical properties?
 - Mg, Al, and Si
 - Mg, Ca, and Ba
 - K, Al, and Ni
 - K, Ca, and Ga
- An atom of aluminum in the ground state and an atom of gallium in the ground state have the same
 - Mass
 - Electronegativity
 - Total number of protons
 - Total number of valence electrons
- Magnesium and calcium have similar chemical properties because a magnesium atom and a calcium atom have the same
 - Atomic number
 - Mass number
 - Total number of electrons shells
 - Total number of valence electrons
- Which Lewis electron-dot diagram represents an atom in the ground state for a Group 13 element?

$\begin{array}{c} \cdot\cdot \\ \cdot\text{X}\cdot \\ \cdot\cdot \end{array}$
(1)

$\text{X}:$
(2)

$\begin{array}{c} \cdot\cdot \\ \text{X}\cdot \\ \cdot\cdot \end{array}$
(3)

$\begin{array}{c} \cdot\cdot \\ \cdot\text{X} \\ \cdot\cdot \end{array}$
(4)
- State the total number of valence electrons in a cadmium atom in the ground state.
- Explain, in terms of atomic structure, why the elements in Group 2 have similar chemical properties.
- In the space in your answer booklet, draw a Lewis electron dot diagram for an atom of sulfur-33.

Base your answers to numbers 10 through 12 on the information below.

Two isotopes of potassium are K-27 and K-42.

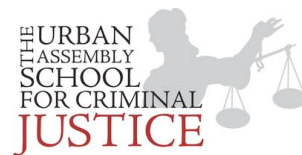
- What is the total number of neutrons in the nucleus of a K-37 atom?
- How many valence electrons are in an atom of K-42 in the ground state?
- Explain, in terms of subatomic particles, why K-37 and K-42 are isotopes of potassium.

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4.3 Exit Ticket

- What is the total number of electrons in the valence shell of an atom of aluminum in the ground state?
(1) 8
(2) 2
(3) 3
(4) 10
 - Which element has chemical properties that are most similar to the chemical properties of sodium?
(1) beryllium
(2) calcium
(3) lithium
(4) magnesium
 - What is the total number of valence electrons in an atom of germanium in the ground state?
(1) 8
(2) 2
(3) 14
(4) 4
 - Magnesium and calcium have similar chemical properties because an atom of each element has the same total number of
(1) electron shells
(2) valence electrons
(3) neutrons
(4) protons
5. Draw a Lewis Dot Diagram for the element Fluorine on the back of this exit slip

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4.3 Exit Ticket

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