

- In the modern Periodic Table, the elements are arranged in order of increasing
 - atomic number
 - mass number
 - oxidation number
 - valence number
- As elements of Group 15 of the Periodic Table are considered in order from top to bottom, the metallic character of the atoms of each successive element generally
 - decreases
 - increases
 - remains the same
- If the elements are considered from top to bottom in Group ~~VII~~, the number of electrons in the outermost shell will
 - decrease
 - increase
 - remain the same
- Atoms of which element have the highest first ionization energy?
 - potassium
 - magnesium
 - calcium
 - sodium
- Which element in Period 3 has the largest covalent atomic radius?
 - P
 - Na
 - Al
 - Cl
- Atoms of metallic elements tend to
 - gain electrons and form negative ions
 - gain electrons and form positive ions
 - lose electrons and form negative ions
 - lose electrons and form positive ions
- At which location in the Periodic Table would the most active metallic element be found?
 - in Group 1 at the top
 - in Group 1 at the bottom
 - in Group 17 at the top
 - in Group 17 at the bottom
- Which is the most active nonmetal in the Periodic Table of the Elements?
 - I
 - Cl
 - Na
 - F
- Which elements have the most similar chemical properties?
 - K and Na
 - K and Cl
 - K and Ca
 - K and S
- As the elements in Group ~~II~~(2) are considered in order of increasing atomic number, the atomic radius of each successive element increases. This increase is primarily due to an increase in the number of
 - unpaired electrons
 - neutrons in the nucleus
 - electrons in the outermost shell
 - occupied principal energy levels
- The element arsenic (As) has the properties of
 - metals, only
 - nonmetals, only
 - both metals and nonmetals
 - neither metals nor nonmetals
- An atom of chlorine and an atom of bromine have the same
 - van der Waals radius
 - number of valence electrons
 - electronegativity
 - ionization energy

13. An element that forms colored ions is

- (1) Ti (3) Na
- (2) Li (4) Ca

14. In Period 2, as the elements are considered from left to right, there is a decrease in

- (1) atomic mass
- (2) ionization energy
- (3) nonmetallic character
- (4) metallic character

15. As the elements in Period 3 are considered from left to right, they tend to

- (1) gain electrons more readily and increase in metallic character
- (2) gain electrons more readily and increase in nonmetallic character
- (3) lose electrons more readily and increase in metallic character
- (4) lose electrons more readily and increase in nonmetallic character

16. Which element is more reactive than strontium?

- (1) iron (3) potassium
- (2) copper (4) calcium

17. Which of these elements in Period 3 has the *least* tendency to attract electrons?

- (1) Cl (3) Al
- (2) S (4) Mg

18. All of the atoms of the elements in Period 2 have the same number of

- (1) occupied principal energy levels
- (2) valence electrons
- (3) neutrons
- (4) protons

19. Considered in succession, the elements in Period 2 of the *Periodic Table* show a decrease in atomic radius with increasing atomic number. This may best be explained by the fact that the

- (1) number of principal energy levels increases
- (2) nuclear charge increases
- (3) number of protons decreases
- (4) number of neutrons decreases

20. When metal atoms bond with nonmetal atoms, the nonmetal atoms will

- (1) lose electrons, and the resulting ions are smaller
- (2) lose electrons, and the resulting ions are larger
- (3) gain electrons, and the resulting ions are smaller
- (4) gain electrons, and the resulting ions are larger