1. Which statement describes the general trends in electronegativity and first ionization energy as the elements in Period 3 are considered in order from Na to Cl?

   A) Electronegativity increases, and first ionization energy decreases.
   B) Electronegativity decreases, and first ionization energy increases.
   C) Electronegativity and first ionization energy both increase.
   D) Electronegativity and first ionization energy both decrease.

2. Which element has atoms with the strongest attraction for electrons in a chemical bond?

   A) chlorine B) nitrogen
   C) fluorine D) oxygen

3. Which term represents the attraction one atom has for the electrons in a bond with another atom?

   A) electronegativity
   B) electrical conductivity
   C) first ionization energy
   D) mechanical energy

4. Which atom has the *weakest* attraction for electrons in a chemical bond?

   A) a boron atom B) a calcium atom
   C) a fluorine atom D) a nitrogen atom

5. Which general trend is found in Period 3 as the elements are considered in order of increasing atomic number?

   A) increasing atomic radius
   B) increasing electronegativity
   C) decreasing atomic mass
   D) decreasing first ionization energy

6. Which general trend is demonstrated by the Group 17 elements as they are considered in order from top to bottom on the Periodic Table?

   A) a decrease in atomic radius
   B) a decrease in electronegativity
   C) an increase in first ionization energy
   D) an increase in nonmetallic behavior

7. Atoms of which element have the greatest tendency to gain electrons?

   A) bromine B) chlorine
   C) fluorine D) iodine

8. Which of these elements has the *least* attraction for electrons in a chemical bond?

   A) oxygen B) fluorine
   C) nitrogen D) chlorine

9. Compared to atoms of metals, atoms of nonmetals generally

   A) have higher electronegativities
   B) have lower first ionization energies
   C) conduct electricity more readily
   D) lose electrons more readily

10. Which trends appear as the elements in Period 3 are considered from left to right?

    A) Metallic character decreases, and electronegativity decreases.
    B) Metallic character decreases, and electronegativity increases.
    C) Metallic character increases, and electronegativity decreases.
    D) Metallic character increases, and electronegativity increases.

11. The ability of carbon to attract electrons is

    A) greater than that of nitrogen, but less than that of oxygen
    B) less than that of nitrogen, but greater than that of oxygen
    C) greater than that of nitrogen and oxygen
    D) less than that of nitrogen and oxygen

12. An element has an ionization energy of 314 kJ/mol and an electronegativity of 3.5. It is classified as a

    A) metal B) nonmetal
    C) metalloid D) halogen

13. Which properties are most common in nonmetals?

A) low ionization energy and low electronegativity
B) low ionization energy and high electronegativity
C) high ionization energy and low electronegativity
D) high ionization energy and high electronegativity

14. Which Group 17 element has the least attraction for electrons?

A) F B) Cl C) Br D) I

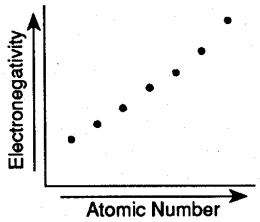
15. Of all the elements, the one with the highest electronegativity is found in Period

A) 1 B) 2 C) 3 D) 4

16. What is the electronegativity value for an element whose atoms in the ground state have an electron configuration of 2-8-8-1?

A) 0.8 B) 0.9 C) 100 D) 419

17. Which diagram correctly shows the relationship between electronegativity and atomic number for the elements of Period 3?

A)
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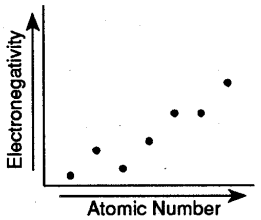


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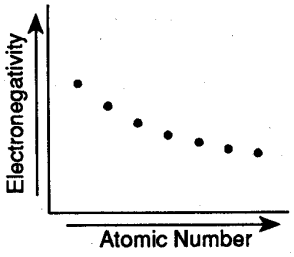
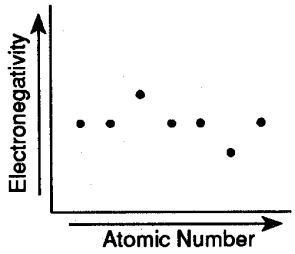



D)



18. Within Period 4 of the Periodic Table, which of the following groups contains the element with the highest electronegativity?

A) 1 B) 2 C) 15 D) 17

19. Elements that readily gain electrons tend to have

A) high ionization energy and high electronegativity
B) high ionization energy and low electronegativity
C) low ionization energy and low electronegativity
D) low ionization energy and high electronegativity

20. Which atom has the strongest attraction for electrons?

A) Cl B) F C) Br D) I