Chemistry G11-Q2W3- H.W.- Chemical Bonding

Complete each statement.

A. alkane
B. shielding effect
C. polar covalent bond
D. Electronegativity

1. A(n) _____ is a compound consisting only of carbon and hydrogen atoms and single bonds.

2. _____ is a measure of the ability of an atom to attract electrons in a chemical bond.

3. When electrons are shared unequally between two atoms, a(n) _____ is formed.

4. The _____ is caused when electrons in inner energy levels tend to block the attraction of the nucleus for valence electrons.

A. malleable
B. ductile
C. conductivity
D. polar molecule

5. _____ is a measure of the ease with which electrons flow through a material to produce an electric current.
6. A(n) _____ metal is one that can be drawn into wires.
7. A molecule in which there is an unequal distribution of electrical charges is called a(n) _____
8. A metal that can be hammered or rolled into thin sheets is said to be _____.

A. double bond
B. triple bond

9. A(n) _____ is a bond formed when three pairs of electrons are shared between two atoms.
10. A bond formed by the sharing of two pairs of electrons is called a(n) _____.

Matching

Match each item with the correct statement below.

a. metallic bond
b. covalent bond
c. ionic bond

____ 11. A material used to make cans
____ 12. A material used to make high-temperature furnaces
____ 13. A material used to make the insulation wrapped around transmission lines that lie on the ocean floor
____ 14. A material that is a good conductor when melted but a poor conductor when solid
____ 15. A material used in the manufacture of wires in suspension bridges
____ 16. A material used as a gaseous propellant in spray cans, such as deodorant or shaving cream dispensers
____ 17. A material that evaporates readily at room temperature
____ 18. A material that is dissolved in large quantities in sea water
____ 19. A material used as a lubricating oil
____ 20. A material used in making electrical transmission wires

The line in Figure 9-1 represents the range of differences in electronegativity that are possible between any two elements in the periodic table. The smallest difference is represented by the left end of the line, and the greatest difference by the right end of the line. In the space provided, write the letter of the labeled parts from this line that corresponds to the descriptions. Some of the letters may be used more than once.

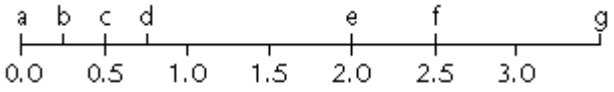

Figure 9-1

____ 21. A polar covalent bond
____ 22. The bond in a diatomic molecule of an element
____ 23. A bond that would form between cesium and fluorine
____ 24. A bond that is classified as nonpolar but that has a slight polarity
____ 25. The division between ionic and polar covalent bonds
____ 26. The bond of greatest possible ionic character
____ 27. The lowest possible value of ΔEN
____ 28. The division between nonpolar covalent and polar covalent bonds
____ 29. An ionic bond that would form between calcium and oxygen
____ 30. A pure nonpolar covalent bond

Modified True/False
Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

____ 31. Atoms form bonds in such a way as to produce the electron configuration of a noble gas. _____

____ 32. Electronegativity differences that result in a polar covalent bond range between 0.5 and 4.0. _____

____ 33. In general, the vast majority of ionic compounds are liquids at room temperature. _____

____ 34. The geometry of alkene molecules is rigid because of the presence of a double bond. _____

____ 35. A nonpolar molecule may contain polar covalent bonds. _____

____ 36. All diatomic molecules are linear. _____

____ 37. In general, the boiling point of a polar liquid is likely to be higher than the boiling point of a nonpolar liquid of about the same mass. _____

____ 38. Conductivity in metals can be explained by what is called a sea of electrons. _____

____ 39. In general, the water solutions of ionic compounds are able to conduct an electrical current. _____

____ 40. A dipole interaction takes place when the positive end of one polar molecule attracts the positive end of a second polar molecule. _____

____ 41. Cesium is an example of an element with a high electronegativity. _____

____ 42. All triatomic molecules are linear. _____

____ 43. In general, the melting points of ionic compounds tend to be low. _____

____ 44. The shielding effect would be greater in an atom of chlorine than in an atom of fluorine. _____

____ 45. A bond formed between two atoms with an electronegativity difference of 0.7 is likely to be a nonpolar covalent bond. _____

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