

- 1) Which kind of energy is stored in a chemical bond?
  - A) free energy
  - B) activation energy
  - C) kinetic energy
  - ☒ D) potential energy
- 2) Which particles may be gained, lost, or shared by an atom when it forms a chemical bond?
  - A) protons
  - ☒ B) electrons
  - C) neutrons
  - D) nucleons
- 3) The forces between atoms that create chemical bonds are the result of the interactions between
  - A) nuclei
  - B) electrons
  - ☒ C) protons and electron
  - D) protons and nuclei
- 4) The degree of polarity of a bond is indicated by
  - A) ionization energy
  - B) the shape of the molecule
  - ☒ C) electronegativity difference
  - D) the charge on the kernel
- 5) Which type of bond is formed when an atom of potassium transfers and electron to a bromine atom?
  - A) metallic
  - ☒ B) ionic
  - C) nonpolar covalent
  - D) polar covalent
- 6) Which type of bonding is characteristic of a substance that has a high melting point and is a good conductor only when in the liquid phase?
  - A) nonpolar covalent
  - B) polar covalent
  - ☒ C) ionic
  - D) metallic
- 7) Which terms describe a substance that has a low melting point and poor electrical conductivity?
  - A) covalent and metallic
  - ☒ B) covalent and molecular
  - C) ionic and molecular
  - D) ionic and metallic
- 8) When two atoms form a chemical bond by sharing electrons, the resulting molecule will be
  - A) polar only
  - B) nonpolar only
  - ☒ C) either polar or nonpolar
  - D) neither nonpolar nor polar

9) Which type of substance is soft, has a low melting point, and is a poor conductor of electricity?

- ☒ A) covalent solid
- ☐ B) ionic solid
- ☐ C) metallic solid
- ☐ D) network solid

10) Which type of bond is formed between two chlorine atoms in a chlorine molecule?

- ☐ A) polar covalent
- ☒ B) nonpolar covalent
- ☐ C) metallic
- ☐ D) ionic

11) Oxygen, nitrogen, and fluorine bond with hydrogen to form molecules. These molecules are attracted to each other by

- ☐ A) ionic bonds
- ☒ B) hydrogen bonds
- ☐ C) polar covalent bonds
- ☐ D) nonpolar covalent bonds

12) Which kind of compound generally results when nonmetal atoms combine with metal atoms?

- ☐ A) network
- ☐ B) molecular
- ☒ C) ionic
- ☐ D) metallic

\* 13) Which statement is true concerning the reaction  $N(g) + N(g) \rightarrow N_2(g) + \text{energy}$ ?

- ☐ A) a bond is broken and energy is absorbed
- ☐ B) a bond is broken and energy is released
- ☐ C) a bond is formed and energy is absorbed
- ☒ D) a bond is formed and energy is released

14) The bond between which pair of elements is the least ionic in character?

- ☐ A) H-F
- ☐ B) H-Br
- ☒ C) H-S
- ☐ D) H-O

lowest END

15) Which compound has the greatest degree of ionic character?

- ☒ A) NaCl
- ☐ B)  $MgCl_2$
- ☐ C)  $AlCl_3$
- ☐ D)  $SiCl_4$

highest END