

1. Which particles may be gained, lost, or shared by an atom when it forms a chemical bond?
- (A) protons (C) neutrons
(B) electrons (D) nucleons
2. Which symbol represents a particle that has the same total number of electrons as S^{2-} ?
- (A) O^{2-} (C) Se^{2-}
(B) Si (D) Ar
3. Which of these elements has an atom with the most stable outer electron configuration?
- (A) Ne (C) Ca
(B) Cl (D) Na
4. Based on electronegativity values, which type of elements tends to have the greatest attraction for electrons in a bond?
- (A) metals (C) nonmetals
(B) metalloids (D) noble gases
5. Which element has atoms with the greatest attraction for electrons in a chemical bond?
- (A) beryllium (C) lithium
(B) fluorine (D) oxygen
6. An example of a physical property of an element is the element's ability to
- (A) react with an acid
(B) react with oxygen
(C) form a compound with chlorine
(D) form an aqueous solution
7. Which bond is *least* polar?
- (A) As-Cl (C) P-Cl
(B) Bi-Cl (D) N-Cl
8. Which of the following elements has the greatest ability to attract electrons?
- (A) Li (C) Na
(B) Be (D) Mg
9. Which type of bonding involves positive ions immersed in a sea of mobile electrons?
- (A) ionic (C) polar covalent
(B) nonpolar covalent (D) metallic

10. Given the electron dot diagram:



The electrons in the bond between hydrogen and fluorine are more strongly attracted to the atom of

- (A) hydrogen, which has the higher electronegativity
(B) fluorine, which has the higher electronegativity
(C) hydrogen, which has the lower electronegativity
(D) fluorine, which has the lower electronegativity
11. An element with an electronegativity of 0.9 bonds with an element with an electronegativity of 3.1. Which phrase best describes the bond between these elements?
- (A) mostly ionic in character and formed between two nonmetals
(B) mostly ionic in character and formed between a metal and a nonmetal
(C) mostly covalent in character and formed between two nonmetal
(D) mostly covalent in character and formed between a metal and a nonmetal
12. Electronegativity is a measure of an atom's ability to
- (A) attract the electrons in the bond between the atom and another atom
(B) repel the electrons in the bond between the atom and another atom
(C) attract the protons of another atom
(D) repel the protons of another atom
13. Which type of bonding is usually exhibited when the electronegativity difference between two atoms is 1.1?
- (A) ionic (C) metallic
(B) covalent (D) network

Worksheet: Intro To Bonding

____ 14. Which compound would have the greatest degree of ionic character?

- (A) Na_2O
- (B) H_2O
- (C) CO_2
- (D) NO_2

____ 15. Two atoms with an electronegativity difference of 0.4 form a bond that is

- (A) ionic, because electrons are shared
- (B) ionic, because electrons are transferred
- (C) covalent, because electrons are shared
- (D) covalent, because electrons are transferred

____ 16. Given the electron dot formula:



Which atom represented as X would have the *least* attraction for the electrons that form the bond?

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

____ 17. Which substance contains bonds that involved the transfer of electrons from one atom to another?

- (A) CO_2
- (B) NH_3
- (C) KBr
- (D) Cl_2

____ 18. Which type of bond is formed when electrons are transferred from one atom to another?

- (A) covalent
- (B) ionic
- (C) hydrogen
- (D) metallic

____ 19. In which compound do atoms form bonds by sharing electrons?

- (A) H_2O
- (B) Na_2O
- (C) CaO
- (D) MgO

____ 20. Which factor distinguishes a metallic bond from an ionic bond or a covalent bond?

- (A) the mobility of electrons
- (B) the mobility of protons
- (C) the equal sharing of electrons
- (D) the unequal sharing of electrons

____ 21. Which substance at STP conducts electricity because the substance contains mobile electrons?

- (A) H
- (B) He
- (C) K
- (D) Kr

Worksheet: Intro To Bonding
Answer Key

1. B

2. D

3. A

4. C

5. B

6. D

7. D

8. B

9. D

10. B

11. B

12. A

13. B

14. A

15. C

16. C

17. C

18. B

19. A

20. A

21. C
