**Name: Period:**

**PSB Unit 2 – Chemical Bonds**

**Types of Bonds Worksheet**

**Directions:** *Study the diagram below. Write your answers to the questions in the spaces provided.*



1. If atom A loses electrons to atom B,

a. how many electrons will atom A lose?

b. how many electrons will atom B gain?

c. what will be the charge of atom A?

d. what will be the charge of atom B?

e. what will be the total charge of the compound formed?

f. what type of bond will form?

2. Explain why an element’s charge is related to the group on the periodic table to which it belongs.

**Directions:** *Complete the table comparing ionic compounds and covalent compounds.*

|  |  |  |
| --- | --- | --- |
| **Characteristic** | **Ionic compounds** | **Covalent compounds** |
| How the compound is formed |  |  |
| Smallest particle |  |  |
| Usual state at room temperature |  |  |

**Directions:** *Complete the sentence by writing the correct terms in the blanks.*

3. An atom that has gained or lost electrons is called a(n) .

4. An atom is when its outer energy level is filled with electrons.

5. A(n) tells what elements make up a compound and the ratios of the
atoms of those elements.

6. A molecule that has a positive end and a negative end is a(n) molecule.

7. A bond that forms between atoms when they share electrons is a(n)
bond.

8. A positive or negative number that is assigned to an element to show its combining ability in
a compound is a(n) .

9. An ion that has a positive charge is called a(n) .

10. When an atom gains an electron, it is called a(n) .

11. The force of attraction between the opposite charges of the ions in an ionic compound is
a(n) .

12. Molecules that do not have oppositely charged ends are molecules.

13. A(n) is formed when atoms gain, lose, or share electrons.

**Directions:** *All of the statements below are false as written. In the space provided, write a term or phrase that
makes the statement true when it is substituted for the underlined words.*

 14. The properties of a compound are the same as the properties of the elements that it contains.

 15. Superscript numbers in chemical formulas tell how many atoms of each element are found in a unit of compound.

 16. All the noble gases except helium have 18 electrons in their outer energy level.

 17. A(n) chemical formula is the force that holds atoms together in a compound.

 18. An ion is a(n) neutral particle that has either more or fewer electrons than protons.

 19. Charges are written as subscripts.

 20. A(n) covalent bond is the force of attraction between the opposite charges of the ions in an ionic compound.

 21. The charge on the final compound is always positive.

 22. Equal sharing of electrons in covalent bonds results in polar molecules.

 23. Only two identical atoms can share electrons unequally.

 24. An anion is a positively charged ion.

 25. When an atom loses an electron, it is called a anion.

**Directions:** *In the blanks, write the terms from the list that complete the definition. Words can be used more than once.*

**positive** **element(s)** **compound(s)** **energy level(s)** **charged**

**number(s)** **force(s)** **atom(s)** **ion(s)** **electron(s)** **negative**

26. A chemical formula tells what make up a
and the exact of atoms of each element in a unit of compound.

27. An atom is chemically stable when its outer is completely filled with .

28. A chemical bond is a that holds together in a compound.

29. An that has lost or gained is called an ion.

30. An ionic bond is the of attraction between the opposite charges of the
 in an ionic .

31. The attraction that forms between when they share is known as a covalent bond.

32. A polar molecule has a slightly end and a slightly end.

33. A nonpolar molecule does not have oppositely ends.

 Only atoms that are exactly alike can share their equally.

**Directions:** *Match each term with its description. Write the letter of the correct term in the space provided.*

**Column I**

 34. chemical bond

 35. chemically stable

 36. nonpolar molecule

 37. ion

 38. ionic bond

 39. polar molecule

 40. covalent bond

 41. chemical formula

**Column II**

a. the force of attraction between the opposite charges of the ions in an ionic compound

b. shorthand that tells what elements a compound contains and the exact number of atoms of each element in a unit of the compound

c. molecule made of two identical atoms that share the electrons equally

d. a charged particle that has either more or fewer electrons than proton

e. describes an atom that has a full outermost energy level

f. molecule that has a slightly positive end and a slightly negative end

g. the attraction that forms between atoms when they share electrons

h. the force that holds atoms together in a compound