

B. Lewis Dot Structures and Bonding

9. What is depicted in a Lewis dot structure?

Element symbol and valence electrons

10. Draw the Lewis dot structures for the following elements:

a. Carbon



b. Aluminum



c. Lithium



d. Helium



e. Argon



f. Phosphorus



g. Silicon



h. Oxygen

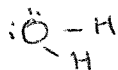


i. Fluorine

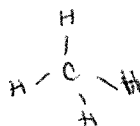


11. Draw the Lewis dot structures for the following compounds. Remember, subscripts tell you the number of atoms present per unit.

a. H₂O



b. CH₄



c. LiCl



d. Na₂S

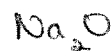


e. O₂



12. Write the chemical formulas for the ionic compounds containing the following elements. Refer to #8 for charges to use the crossing method.

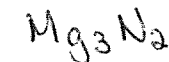
a. Na and O



b. Ca and Cl



c. Mg and N



d. Cs and F



C. Naming Binary Compounds

13. What are the differences in naming covalent and ionic compounds?

14. When do you NOT use a prefix for a covalent compound? *mono on the first element*

15. Fill in the prefix table below.

Prefix	Number
mono	1
di	2
tri	3
tetra	4
penta	5
hexa	6
hepta	7
octa	8
nona	9
deca	10

16. Name the following *ionic* compounds:

- NaCl Sodium chloride
- MgF₂ Magnesium fluoride
- AlCl₃ Aluminium chloride
- BeO Beryllium oxide.

17. From the following names, write the chemical formula for the ionic compounds. Write the ions first, then use the crossing method.

- Sodium oxide Na₂O
- Magnesium oxide MgO
- Barium fluoride BaF₂
- Lithium bromide LiBr

18. Write the names for the following *covalent* compounds.

- CO carbon monoxide
- CO₂ carbon dioxide
- N₂H₄ dinitrogen tetrahydride
- SO₄ sulfur tetroxide
- N₃O₅ tri nitrogen pentoxide
- CS₆ carbon hexasulfide

19. Write the formula for the following names.

- trisilicon tetrafluoride Si₃F₄
- carbon trioxide CO₃
- dichlorine heptoxide Cl₂O₇
- tetracarbon decasulfide C₄S₁₀
- boron hexachloride BCl₆
- dihydrogen dioxide H₂O₂

20. Below is a mixed set of chemical compounds. Ionic and covalent are both present. Name or give the chemical formula.

- | | |
|---|---|
| a. CaO calcium oxide | h. Potassium bromide KBr |
| b. H ₂ O ₂ dihydrogen dioxide | i. Nitrogen trioxide NO ₃ |
| c. Carbon dioxide CO ₂ | j. NO nitrogen monoxide |
| d. Magnesium oxide MgO | k. SF ₆ sulfur hexafluoride |
| e. PCl ₃ phosphorus trichloride | l. Strontium nitride Sr ₃ N ₂ |
| f. NH ₂ nitrogen dihydride | m. Diphosphorus pentoxide P ₂ O ₅ |
| g. Dinitrogen monoxide N ₂ O | |

