

Chemistry Review #1
Periodic Table, Ions, Chemical Formulas, and Balancing Chemical Equations

Name: _____

Part A – True/False

Some of the statements are false; some are true. Write T to the left of the statement if it is true. If the statement is false, write F.

- F Each shell of electrons around an atom can hold up to eight electrons. *- the first shell can only hold 2*
- T A positively charged ion is called a cation.
- T Valence electrons are located in the outermost electron shell of the atom.
- F Lithium oxide is a molecular compound. *- it is an ionic compound.*
- T A covalent bond forms when atoms share electrons.

Part B – Multiple Choice

Circle the best response.

- When nitrogen combines with oxygen a/an _____ bond is the result.
A) ionic
B) metallic
 C) covalent
D) acidic
- Calcium combines with bromine in the ratio
 A) 1:2
B) 1:3
C) 2:1
D) 3:1
*Ca²⁺ Br⁻
CaBr₂*
- One molecule of chlorine is written as
A) Cl
B) Cl²
 C) Cl₂
D) Cl⁻

3. Write the chemical names of the following binary compounds. Some of the names may require use of the Stock system.

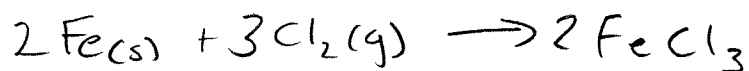
- a) MgI_2 magnesium iodide
- b) LiCl lithium chloride
- c) Be_3N_2 beryllium nitride
- d) CH_4 carbon tetrahydride
- e) N_2O_4 dinitrogen tetroxide
- f) CuCl_2 copper (II) chloride
- g) FeO iron (II) oxide

4. Balance the following chemical equations.

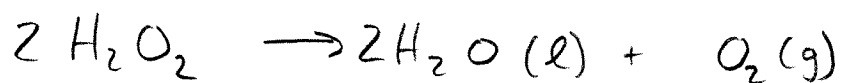
- a) $2 \text{K} + \text{Br}_2 \rightarrow 2 \text{KBr}$
- b) $\text{SiO}_2 + 4 \text{HF} \rightarrow \text{SiF}_4 + 2 \text{H}_2\text{O}$
- c) $\text{Al}_2(\text{SO}_4)_3 + 3 \text{Ca}(\text{OH})_2 \rightarrow 2 \text{Al}(\text{OH})_3 + 3 \text{CaSO}_4$
- d) $\text{Au}_2\text{S}_3 + 3 \text{H}_2 \rightarrow 2 \text{Au} + 3 \text{H}_2\text{S}$
- e) $2 \text{Na}_2\text{O}_2 + 2 \text{H}_2\text{O} \rightarrow 4 \text{NaOH} + \text{O}_2$

5. Write a balanced chemical equation using symbols for each of the word equations.

- a) Iron metal and chlorine gas react to form iron(III) chloride.



- b) Hydrogen peroxide breaks down into water and oxygen.



- c) Methane reacts with oxygen to produce carbon dioxide and water vapor.



- d) Hydrogen gas and nitrogen monoxide react to form water and nitrogen gas.



- e) Aluminum bromide and chlorine gas react to form aluminum chloride and bromine gas.

