

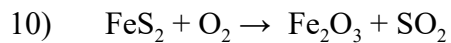
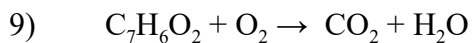
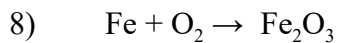
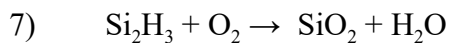
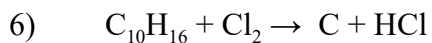
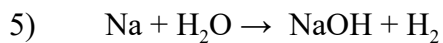
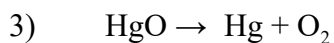
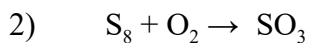
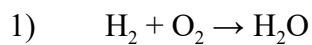
Chemistry Exam Review

Section 1: Law of Conservation of Mass

a) What is the Law of Conservation of Mass?

b) Explain how the law of conservation of mass applies to chemical reactions:

c) Balance the following chemical equations



Section 2: Bonding

1) Compare and contrast Ionic and Covalent bonds

Ionic	Both	Covalent

2) What kind of bond forms between a metal and a non-metal?

3) What kind of bond forms between two non-metals?

4) Predict what type of bond (Ionic or covalent) is most likely to be formed between the given substances:

a. between magnesium and chlorine

b. between two oxygen atoms

c. between an iron and sulfur

d. between carbon and nitrogen

e. between sodium and bromine

5) Draw Lewis Dot diagrams around the following atoms:

N Cl Mg Ti Li Na O

6) Construct Lewis Dot diagrams that show the IONIC bond between the following groups of elements

a) KBr

b) MgO

K Br

Mg O

c) MgCl₂

d) Na₂O

Cl Mg Cl

Na O Na

LEWIS DOT DIAGRAMS AND COVALENT BONDS

Drawing dot diagrams is an easy way to visualize the valence electrons in an atom and to predict covalent bonds. Use these steps to draw a correct covalent bond between two non-metals.

- 1.) Add up the total valence electrons.
- 2.) Draw a single bond between the central atom and each surrounding atom. Each bond accounts for 2 electrons.
- 3.) Arrange the remaining electrons symmetrically around the atoms so that each atom in the molecule has a full valence shell (usually the appearance of 8 electrons). Draw double and triple bonds to achieve this.

EXERCISES:

Construct the Lewis dot bond diagrams for the following compounds:

1. Fluorine gas (F_2).
2. Oxygen gas (O_2).
3. Nitrogen gas (N_2).
4. Chlorine gas (Cl_2).
5. Carbon tetrafluoride (CCl_4).
6. Carbon monoxide (CO).
7. Silicon dioxide (SiO_2).
8. Methane (CH_4).
9. Water (H_2O).
10. Iodine (I_2).

Section 4: Acids and Bases

A) Compare and Contrast acids and bases

Acids	Both	Bases

B) What is the pH Scale? And explain how it is used.

C) What is a pH Indicator

D) Explain how you would use an indicator to determine the pH of a substance