Chemistry Review #1
Periodic Table, Ions, and Bonding

Part A – True/False

If the statement is true, write T in blank. If the statement is false, write F in the blank.

1. __*F*__ Each shell of electrons around an atom can a maximum of eight electrons.
2. __*T*__ A positively charged ion is called a cation.
3. __*T*__ Valence electrons are located in the outermost electron shell of the atom.
4. __*F*__ Lithium oxide is a molecular compound.
5. __*T*__ A covalent bond forms when atoms share electrons.

Part B – Fill in the Blank

Fill in the blanks with the appropriate words.

1. When nitrogen combines with oxygen a(n) _*covalent*_____ bond is formed.
2. When calcium combines with chlorine a(n) __*ionic*_____ bond is formed.
3. Non-metals ___*gain*_____ electrons to become __*negatively*__ charged ions which are called ___*anions*_____.
4. Metals ___*lose*_____ electrons to become __*positively*_____ charged ions which are called ____*cations*_____.
5. One molecule of chlorine gas is written as _____*Cl_2*_____.

anions	Cl_2	ionic	negatively
cations	covalent	lose	neutrally
Cl	gain	metallic	positively

Part C – Free Response

1. Predict the formula of the ionic compound formed when the following combine.

   (a) magnesium and oxygen

   MgO

   (b) calcium and chlorine

   $CaCl_2$

   (c) potassium and oxygen

   K_2O

   (d) sodium and sulfide (SO_4^{2-})

   Na_2SO_4

2. Explain what is meant by

   (a) an ionic compound.

   A compound formed when positively charged cation is attracted to a negatively charged anion.

   (b) a molecular compound.

   A compound formed when atoms share electrons.