**Chem 1013 Intro to Chem**

**Spring 2012 Alfred State College**

**Exercise #2**

*Assigning ‘Lewis dot’ pictures to elements, Lewis electron book keeping, basic octet rule applications;*

*The HONC simplification for organic compounds*

**2.1. Lewis Dot Modeling of elements**

**1) With the aid of your Periodic table, draw the correct `Lewis dot’ picture for each of the elements below:**

1. *Ne b) F c) Mg d)As e)S f) K g) Si*

**2.2. Lewis electron book keeping**

1) How many core and valence electrons exist around each neutral element below ?

2) which inert gas is represented by your core counts ?

# core e- core’s equivalent inert gas # valence e- gain/lose e- to stable case

Ex. Al 8 [Ne] 3 lose 3🡪 Al+3

**Na**

**N**

**S**

**Ca**

**Cl**

3) What’s the easiest way to produce a stable total of 8 electrons in the valence count, or just a stable inert gas core count ?

**2.3. Building covalently bonded compounds with Lewis octet rules**

Provide the most reasonable bonding arrangements for:

1. **SO2 b) CS2 c) HCN d) COCl2 e)SO3**

**2.4. Bonding Patterns for Organics: Using the HONC rules**

**ID** all the atoms which exhibit disallowed bonding according to the simple HONC rules in the proposed organic structures below and tell what rule is violated

**HONC rules**

**Element allowed # of bonds # lone pairs**

H 1 0

0 2 2

N 3 1

C 4 0

F,Cl,Br,I 1 (usually) 3(usually)





