

Assignment #3

Name  _____

Gen Chem 1 Section 43

Score _____

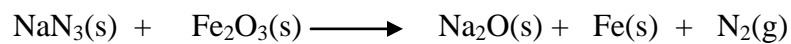
- Which of the following elements has the highest first ionization energy?
 - Be
 - B
 - C**
 - Na
 - Ba
- Which of the following properties, in general, increase as we move left to right across a period in the periodic table?
 - atomic radius
 - ionization energy
 - electron affinity
 - 1 only
 - 2 only
 - 3 only
 - 1 and 2 only
 - 2 and 3 only**
- Which of the following diatomic molecules has the greatest bond strength?
 - Cl₂
 - HCl
 - CO**
 - H₂
 - HF
- The shape of ammonium ion, NH₄⁺, is most similar to the shape of:
 - NH₂⁻
 - NH₃
 - N₂H₄
 - CH₃
 - CH₄**
- When a carbon atom has sp³ hybridization, it has
 - Four π bonds
 - Three π bonds one σ bond
 - Two π bonds and two σ bond
 - One π bond three σ bond
 - four σ bonds**

6. Which of the following statements concerning equal volumes of gases N_2O , and propane, C_3H_8 , at the same temperature and pressure, is (are) true?
1. They have the same number of atoms
 2. They have the same number of molecules
 3. They have the same density
 - a. 1 only
 - b. 2 only**
 - c. 1 and 2 only
 - d. 2 and 3 only
 - e. 1, 2 and 3
7. Draw two possible structures for SOCl_2 . Assign formal charges to each atom and specify which is correct and why.

8. What is the density of oxygen, N_2 , in g/L at 35°C and 745mmHg ?



9. Automobiles are being equipped with air bags that inflate on collision to protect the occupants from injury. Many such air bags are inflated with N_2 using the rapid reaction of sodium azide, NaN_3 , and Iron (III) oxide, Fe_2O_3 which is initiated by a spark.



How many grams of NaN_3 would be required to provide 75.0 L of N_2 at $25^\circ C$ and 748 mm Hg?



10. Do the following problems in Brown Lemay Bursten:
8.34, 8.64, 9.14, 9.26