Chemistry 115 - Name

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Quiz 5A (20 points) October 7, 2008

All work must be shown to receive credit.

Avogadro’s number = 6.022 x 1023/mol

1. (4 points) How many grams of Fe2S3 will contain 9.44 x 1023 atoms of iron (Fe)?

$$?g Fe\_{2}S\_{3}=9.44×10^{23} atom Fe×\frac{1 unit Fe\_{2}S\_{3}}{2 atom Fe}×\frac{1 mol Fe\_{2}S\_{3}}{6.022×10^{23} unit Fe\_{2}S\_{3} }×\frac{207.9 g Fe\_{2}S\_{3}}{1 mol Fe\_{2}S\_{3}}=163 g Fe\_{2}S\_{3}$$

1. (2 points) What are two indicators of a chemical reaction (ie they are evidence that a chemical reaction has taken place.)
* Permanent color change
* Temperature change
* Formation of a precipitate
* Formation of a gas
1. (6 points) Balance the following chemical reactions by inspection.
	1. 4 Al + 3 MnO2 🡪 3 Mn + 2 Al2O3
	2. 2 K3PO4 + 3 BaCl2 🡪 6 KCl + Ba3(PO4)2
2. (8 points) Answerthe following questions using the balanced reaction shown below:

4 FeS2 + 11 O2 🡪 2 Fe2O3 + 8 SO2

* 1. How many molecules of O2 are required to react with 24 formula units of FeS2

$$?molec O\_{2}=24 units FeS\_{2}×\frac{11 molecules O\_{2}}{4 units FeS\_{2}}=66 molecules O\_{2}$$

* 1. How many moles of SO2 will be formed by the complete reaction of 121 moles of O2?

$$?mol SO\_{2}=121 mol O\_{2}×\frac{8 mol SO\_{2}}{11 mol O\_{2}}=88 mol SO\_{2}$$