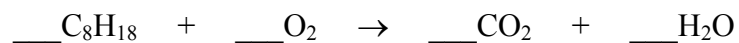
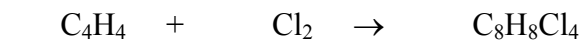
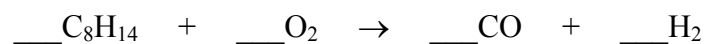


2 (8 points total). Balance each of the following chemical reactions.



3 (8 points total). Answer 2 out of 3 parts below. Indicate the 2 parts you want me to grade by circling their part numbers. Show your work!

3a. Calculate the formula weight and the percent oxygen in carbon dioxide.

3b. Determine the number of moles or grams as appropriate for each of the following.

3b(i). 0.10 mol of water.

3b(ii). 27.50 g of C_2H_2 .

3b(iii). 56.04 g of N_2 .

3b(iv). 12.87 mol of PH_3 .

3c. Apply concepts of Chapter 3 to explain how a microwave oven works. Include in your discussion why food warms while a glass container does not significantly change temperature.

4 (8 points total). Answer 2 out of 3 parts below. Indicate the 2 parts you want me to grade by circling their part numbers.

4a. Clearly describe what is meant by the term flashover including what it looks like and why it happens.

4b. Discuss the differences between coal mined in western parts of the US such as Colorado and that mined in the eastern parts of the US such as Pennsylvania.

4c. Draw a diagram of a petroleum distillation tower at an oil refinery, discuss how it works, and indicate where the gasoline would be taken off of the tower.

5 (8 points total).

5a. Use both math and a physical model, describe what is meant by the term PPM.

5b. What is the formula of molecular oxygen? Clearly describe the physical effect of a photon hitting a molecule of molecular oxygen. What is the environmental importance of this process.

5c. Clearly describe what is meant by the term Halon. Give one specific example of a Halon. What are they used for? Give the environmental importance of Halons.

Chemistry 1500, Dr. Hunter

Summer 2004

Final Exam (Group Part)

Name: _____, _____ Signature: _____

Name: _____, _____ Signature: _____

Name: _____, _____ Signature: _____

Name: _____, _____ Signature: _____

Name: _____, _____ Signature: _____

Name: _____, _____ Signature: _____

Last name**First name**

The group portion of this final has one page of questions plus this title page for a total of two pages. Please make sure you have all pages. Place the names (last name first) and signatures of each group member above. *Initial each page of the exam in the top right hand corner* using the initials of the first group members so that if your exam pages get separated I can match them to your group.

To obtain maximum credit for each question, show your work in detail. Partial credit for questions will not be assigned if no work is shown. **Indeed, no credit will be granted if complete work is not shown even for correct answers.** Feel free to use pictures/diagrams to illustrate your text answers and/or to use short text explanations to explain your drawings if your pictures are ambiguous. If you have to make assumptions, etc., to complete any answers, write me a short note stating and/or explaining your assumptions and testing them to the degree possible.

You have 30 minutes for the group part of this final exams. The ten points for the group part of this final correspond to 10% of the 100 overall points for this course.

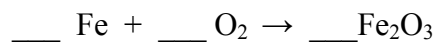
Grade /10 (group) ⇒ /10%

1 (10 points total). Answer each part below taking special care to show your work and clearly state your assumptions.

1a. Showing your work, estimate the total number of grams of steel contained in all of the new private automobiles (i.e., private cars, SUVs, minivans, pickups, etc.) sold in the US each year. [Note: 1 US Ton = 907,185 Grams]

1b. How many moles of iron is contained in this yearly automobile steel usage?

1c. The following is the equation for rusting. Balance this equation.



1d. Using your results from parts 1a – 1c, how many grams of rust would be produced if all of these new vehicles sold in one year were allowed to completely convert to rust.