Chemistry 1500, Dr. Hunter
Summer 2008
Exam # 1 (Individual Part)

Name: ______________________________, ______________________________

Last name   First name

Student Number (your social security number): ___________________________

Signature: _____________________________________

The individual portion of this exam has this title page plus three pages of questions. Please make sure you have all pages. Place your name (last name first) and your student number (or your Social Security number, as you prefer) in the spaces above and sign on the line. Initial each page of the exam in the top right hand corner so that if your exam pages get separated I can match them to you.

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.

On the first question on this exam (i.e., pages 2 & 3), you are given a choice about which 5 out of the 6 parts to answer. On this question, be sure that you circle the part numbers of those parts you want me to grade. [Note: If you do not clearly indicate your choice, I will count only the first 5 parts towards the grade.]

You have 45 minutes for the individual part of this exam. The seventy five points for the individual part of this exam correspond to 3/16th of the points for this course. Together, the group and individual parts of this exam are worth ¼ of the total course grade.

Grade   /75 (individual)
1 (50 points total, each part is worth a maximum of 10 points). Answer five (5) of the six (6) parts of this question (i.e., on pages 2 & 3, below). Indicate the 5 parts you want me to grade by circling their part numbers.

a. Clearly described the effects on a cat if the oxygen content of the atmosphere were to drop by 20%. Give your reasoning.

b. Give the number of significant figures for each of the following clearly describing how you come to this answer. If you wanted to do an accurate calculation, which number would you use (give me your reasoning).

\[ 2.112 \times 10^5 \rightarrow 211,000 \rightarrow 2.1 \times 10^5 \rightarrow \]

\[ 2.1 \times 10^5 \rightarrow \]

c. Convert the following numbers from scientific notation to conventional numbers or from conventional numbers to scientific notation, as required.

\[ 3,200,000 = \]
\[ 0.000,04 = \]
\[ 2.182 \times 10^{-4} = \]
\[ 4.1 \times 10^5 = \]
\[ 34,211,000 = \]
d. Describe in detail the differences between Chronic and Acute exposure to a potentially toxic chemical.

e. What is the second largest constituent of Air? Discuss its properties and uses.

f. Calculate the mileage of a car that drives 406 miles using 11.2 gallons of gas. Show your work.
2 (25 points total). Balance each of the following chemical reactions.

\[ \text{___C}_5\text{H}_8 + \text{___O}_2 \rightarrow \text{___CO}_2 + \text{___H}_2\text{O} \]

\[ \text{___C}_6\text{H}_6 + \text{___Cl}_2 \rightarrow \text{___C}_6\text{H}_4\text{Cl}_4 + \text{___HCl} \]

\[ \text{___C}_6\text{H}_12\text{O}_4 + \text{___Cl}_2 \rightarrow \text{___C}_6\text{H}_4\text{Cl}_8 + \text{___H}_2\text{O} \]

\[ \text{___WC}_6\text{O}_6 + \text{___Br}_2 \rightarrow \text{___CO} + \text{___WBr}_6 \]

\[ \text{___MgSO}_4 + \text{___HCl} \rightarrow \text{___MgCl}_2 + \text{___H}_2\text{SO}_4 \]