CHEM 130 **Name** _____
Quiz 9 – November 30, 2011 **Due In Class Monday December 5, 2011.**

5 Point Bonus for all Quizzes Submitted by 4:00 PM Friday, December 2

Complete the following individually. You may use your textbook and notes, but may not receive assistance from your classmates or anyone other than Dr. Lamp. *This signed statement must accompany the completed assignment*. By signing below, you certify that you completed the problems in accordance with these rules. No credit will be given to unsigned papers. Staple any additional sheets prior to turning the assignment in.

Signature_____ Date_____

Complete the following problems on separate paper and **staple the pages** to this sheet **write your final answers on this page**. **You must show your work to receive full credit**. Show your answers to the correct number of significant figures with the correct units.

1. A 0.431 g sample of HCl(g) was placed in a 625 mL reaction vessel at a 862K and allowed to dissociate to H_2 and Cl_2. When equilibrium is reached between HCl(g), H_2(g) and Cl_2(g), 0.0414 g Cl_2 is present. What is the K_c for the reaction at this temperature?

   Answer: K_c =

2. Carbonyl bromide, $COBr_2$(g), decomposes to CO(g) and Br_2(g) with an equilibrium constant, K_c, of 0.190 at 73°C. If a 0.0150 mol sample of $COBr_2$ is heated in a 2.50 L flask until equilibrium is attained, what will be the concentrations of all $COBr_2$, CO, and Br_2 at equilibrium?

   Answer: [$COBr_2$] =

   [CO] =

   [Br_2] =

3. In the reaction $CO(g) + H_2O(g) \rightleftarrows CO_2(g) + H_2(g)$, K_c = 31.4 at 588 K. If 10.1 g of each reactant and product are brought together in a 1.00 L reaction vessel at 588 K, how many grams of H_2O will be present at equilibrium?

   Answer: mass H_2O =

4. Determine K_c for the reaction: $N_2(g) + O_2(g) + Cl_2(g) \rightleftarrows 2NOCl(g)$ from the following data at 298K:

$\frac{1}{2}\ N_2(g) + O_2(g) \rightleftarrows NO_2(g)$	$K_p = 1.0 \times 10^{-9}$
$NOCl(g) + \frac{1}{2}\ O_2(g) \rightleftarrows NO_2Cl(g)$	$K_p = 1.1 \times 10^{2}$
$NO_2(g) + \frac{1}{2}\ Cl_2(g) \rightleftarrows NO_2Cl(g)$	$K_p = 0.3$

   Answer: K_c =