Grossmont College Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chemistry 142, Spring 2015

Quiz 3

1. For the reaction H2 (g) + I2 (g) 🡨 🡪 2 HI (g) Kc = 50.5

The initial pressures are HI = 0.975 atm, H2 = 0.105atm and I2 = 0.105 atm,

1. Find Q, compare to Kc explain what it means.
2. what are the equilibrium pressures for all the substances?
3. Using the data,

(1) SnO2 (s) + 2 H2 (g) ⇌ Sn(s) + 2 H2O (g) Kp1= 8.12

(2) H2 (g) + CO2 (g) ⇌ H2O (g) + CO (g) Kp2 = 0.771

Calculate the value of Kp for the following reaction.

SnO2 (s) + 2 CO (g) ⇌ Sn (s) + 2 CO2 (g)

1. The mechanism of a reaction is shown below.

HOOH + I¯ 🠆 HOI + OH¯ (slow)

HOI + I¯ 🠆 I2 + OH¯ (fast)

2OH¯ + 2H3O+ 🠆 4 H2O (fast)

a) What is the overall reaction?

b) Which compounds are intermediates?

c) Predict the rate law based on this mechanism.

d) What is the overall order of the reaction?