CHM 111
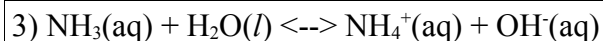Quick Quiz - 3/15/04   ANSWERS

Answer the question. [20]

1) The equilibrium *2NOBr(g) <--> 2NO(g) + Br$_2$(g)* has an equilibrium constant (K$_c$) value of 3.07x10^{-4} at 24°C. Does this reaction favor products or reactants at equilibrium?

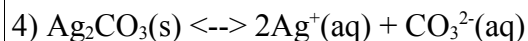- **The equilibrium favors reactants. (K$_c$ is small).**

2) Define the term *chemical equilibrium*.

- **A state where the rate of the forward reaction is equal to the rate of reverse reaction.**
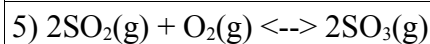
Write concentration-based equilibrium constant expressions for the following reactions. [20]

3) NH$_3$(aq) + H$_2$O(*l*) <--> NH$_4^+$(aq) + OH$^-$(aq)

$$K_c = \frac{[NH_4^+] \times [OH^-]}{[NH_3]}$$

4) Ag$_2$CO$_3$(s) <--> 2Ag$^+$(aq) + CO$_3^{2-}$(aq)

$$K_c = [Ag^+]^2 \times [CO_3^{2-}]$$

5) 2SO$_2$(g) + O$_2$(g) <--> 2SO$_3$(g)

$$K_c = \frac{[SO_3]^2}{[SO_2]^2 \times [O_2]}$$