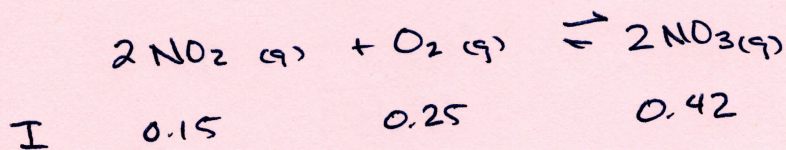
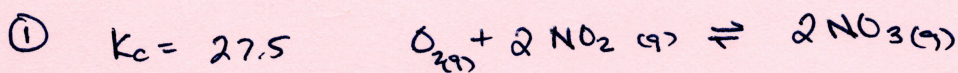


Reaction Quotient Answers



$$Q = \frac{[NO_3]^2}{[NO_2]^2 [O_2]}$$

$$= \frac{(0.42)^2}{(0.15)^2 (0.25)}$$

$$= 31.36$$

$$Q > K_c$$

\therefore shift left to achieve eq'm

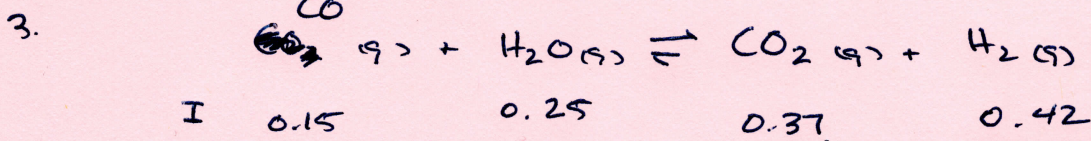


$$K_c = 0.0060$$

$$Q = [CO_2]$$

$$= 0.0004$$

$Q < K_c$
 \therefore shift right to achieve eq'm



$$K_c = 5.10$$

$$Q = \frac{[CO_2][H_2]}{[CO][H_2O]}$$

$$= \frac{(0.37)(0.42)}{(0.15)(0.25)}$$

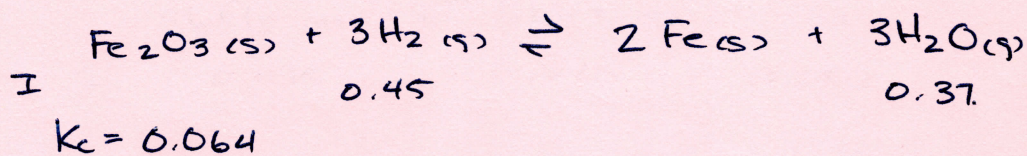
$$= 4.14$$

$$Q < K_c$$

$$4.14 \quad 5.10$$

\therefore shift left to achieve eq'm

4.



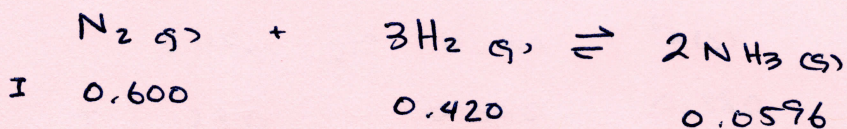
$$Q = \frac{[\text{H}_2\text{O}]^3}{[\text{H}_2]^3}$$

$$= \frac{(0.37)^3}{(0.45)^3}$$

$$= 0.556$$

$Q > K_c$
 \therefore shift left
 to achieve eq'm

6.



$K_c = 0.080$

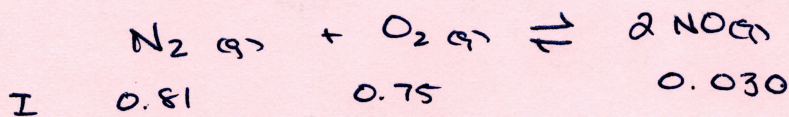
$$Q = \frac{[\text{NH}_3]^2}{[\text{N}_2][\text{H}_2]^3}$$

$$= \frac{(0.0596)^2}{(0.6)(0.4)^3}$$

$$= 0.0925$$

$Q > K_c$
 \therefore shift left
 to achieve eq'm

5.



$K_c = 0.025$

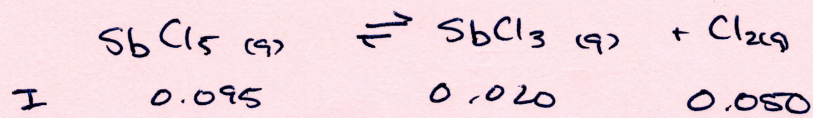
$$Q = \frac{[\text{NO}]^2}{[\text{N}_2][\text{O}_2]}$$

$$= \frac{(0.03)^2}{(0.81)(0.75)}$$

$$= 0.00148$$

$Q < K_c$
 \therefore shift right
 to achieve eq'm

7



$$K_c = 0.0251$$

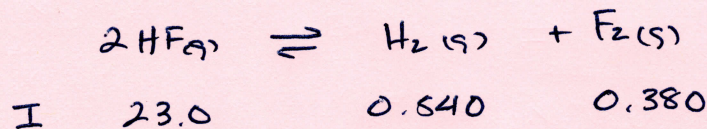
$$Q = \frac{[\text{Cl}_2][\text{SbCl}_3]}{[\text{SbCl}_5]}$$

$$= \frac{(0.02)(0.05)}{(0.095)}$$

$Q < K_c$
 \therefore shift right
 to achieve
 eq'm

$$= 4.24 \times 10^{-5}$$

8.



$$K_c = 1.0 \times 10^{-13}$$

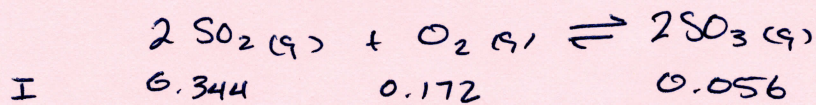
$$Q = \frac{[\text{H}_2][\text{F}_2]}{[\text{HF}]^2}$$

$Q > K_c$
 \therefore shift left to
 achieve eq'm

$$= \frac{(0.54)(0.38)}{(23)^2}$$

$$= 8.92 \times 10^{-3}$$

9.



$$K_c = 0.15$$

$$Q = \frac{[\text{SO}_3]^2}{[\text{SO}_2]^2[\text{O}_2]}$$

$$= \frac{(0.056)^2}{(6.344)^2(0.172)}$$

$$= 0.154$$

$Q > K_c$
 \therefore shift left to
 achieve eq'm