Name: _____ Date: _____

Le Chatelier's Principle

Homework Unit 9 -Topic 6

Stresses & Shifts

Endo

$12.6\ kcal + H_{2(g)} + I_{2(g)} \rightleftarrows 2HI_{(g)}$

Stress	Equilibrium Shift	$[H_2]$	$[I_2]$	$[HI]$
Add H_2	right	_____	decreases	increases
Add I_2	R	↓	_____	↑
Add HI	L	↑	↑	_____
Remove H_2	L	_____	↑	↓
Remove I_2	L	↑	_____	↓
Remove HI	R	↓	↓	_____
Increase Temperature	R	↓	↓	↑
Decrease Temperature	L	↑	↑	↓
Increase Pressure	—	—	—	—
Decrease Pressure	—	—	—	—

Answer the questions below based on your knowledge of chemistry.

1. For each of the following, what effect would an increase in *pressure* have on equilibrium?

   (a) $N_{2(g)} + 3H_{2(g)} \rightleftarrows 2NH_{3(g)}$ RIGHT

   (b) $4H_{2(g)} + CS_{2(g)} \rightleftarrows CH_{4(g)} + 2H_2S_{(g)}$ RIGHT

2. For each of the following, what effect would an increase in temperature have on equilibrium?

   (a) $N_{2(g)} + 3H_{2(g)} \rightleftarrows 2NH_{3(g)}\ \Delta H = -92\ kJ$ LEFT

   (b) $C_{(s)} + H_2O_{(g)}$ heat $\rightleftarrows CO_{(g)} + H_{2(g)}$ RIGHT

Regents Practice Problems

3. Given the reaction at equilibrium:
$N_{2(g)} + 3H_{2(g)} \rightleftarrows 2NH_{3(g)}$

If the pressure is increase at a constant temperature, there will be an increase in the number of moles of

(1) NH_3, only
(2) N_2, only
(3) H_2, only
(4) both N_2 and H_2

4. An increase in the temperature of a system at equilibrium favors the

(1) endothermic reaction and decreases its rate
(2) endothermic reaction and increases its rate
(3) exothermic reaction and decreases its rate
(4) exothermic reaction and increases its rate