CHEMBUDDY CHAPTER 6

6.3 LE CHATELIER'S PRINCIPLE



CHOOSE THE CORRECT ANSWER

NO	QUESTION	NO	QUESTION
1	. Some inert gas is added at constant volume to the following reaction at equilibrium. $NH_4HS(s) \rightleftharpoons NH_3(g) + H_2S(g)$ Predict the effect of adding inert gas: A. The equilibrium position shift in the forward direction B. The equilibrium position shift in the backward direction C. The equilibrium remains unaffected D. The value of Kp is increased	2	Consider this gas phase equilibrium system $PCl_5(g) \rightleftharpoons PCl_3(g)+Cl_2(g)$ $\Delta H^\circ_{rxn} = +87.8 kJ/mol$ Which of the following statements is ***FALSE***? A. Increasing the system volume shifts the equilibrium to the right. B. Increasing the temperature shifts the equilibrium to the right. C. A catalyst speeds up the approach to equilibrium and shifts the position of equilibrium to the right. D. Increasing the temperature causes the equilibrium constant to increase
3	For the equilibrium system: $N_2O_4(g) + \text{heat} \rightleftharpoons 2NO_2(g)$ Which of the following factors would cause the value of the equilibrium constant to decrease? A. Decreasing the temperature. B. Removing some NO_2. C. Adding a catalyst. D. Adding some He gas at constant volume.	4	For the reaction $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g) + \text{heat}$ What conditions of pressure and temperature would be optimum for the synthesis? A. Low *T* and low *P* B. Low *T* and high *P* C. High *T* and low *P* D. High *T* and high *P*
5	Which of the following stresses would lead the exothermic reaction below to shift to the right? $A(g) + B(g) \rightleftharpoons 3C(g) + D(aq)$ A. Increasing [A] B. Increasing [C] C. Decreasing the volume D. Increasing the temperature	6	Which of the following does not affect the equilibrium of a reaction? A. Adding heat B. Increasing the concentration of reactants C. Removing heat D. Adding a catalyst

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Consider the following reaction system, which has a K_{eq} of 1.35×10^4, taking place in a closed vessel at constant temperature.

$AX_3(g) + X_2(g) \rightleftharpoons AX_5(g)$

Which of the following is NOT true about this system at equilibrium?

A. Increasing the volume will produce more AX_3.

B. AX_5 is the main compound present.

C. The rate of formation of AX_5 equals the rate of formation of AX_3 and X_2.

D. Increasing the pressure will produce more AX_5.

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Ammonia gas form according to this equation;

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$

Experimental data shows that the reaction shifts to the left at very cold temperatures. Using this information, what type of reaction occur?

A. Exothermic

B. Maxwell Boltzmann-like

C. Endergonic

D. Endothermic

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Consider the following reaction:

$N_2O_4(g) \rightleftharpoons 2NO_2(g)$

Which of the following changes would be expected to drive the reaction to the left?

A. An increase in pressure.

B. A decrease in pressure.

C. Addition of water to the reaction mixture.

D. Reducing the amount of NO_2 in the reaction vessel.

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In the reaction:

$2NO(g) + Cl_2(g) \rightleftharpoons 2NOCl(g)$

If the pressure exerted by the equilibrium mixture of NO, Cl_2, NOCl gases is reduced at constant temperature, the system will re-establish equilibrium via

A. an addition of moles of Cl_2.

B. an increase of the NOCl concentration.

C. an addition of moles of NOCl.

D. an increase of equilibrium constant Kc.

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