

CHEMBUDDY CHAPTER 6
6.3 LE CHATELIER'S PRINCIPLE



CHOOSE THE CORRECT ANSWER

NO	QUESTION	NO	QUESTION
1	<p>Some inert gas is added at constant volume to the following reaction at equilibrium.</p> $\text{NH}_4\text{HS}(\text{s}) \rightleftharpoons \text{NH}_3(\text{g}) + \text{H}_2\text{S}(\text{g})$ <p>Predict the effect of adding inert gas:</p> <ol style="list-style-type: none"> The equilibrium position shift in the forward direction The equilibrium position shift in the backward direction The equilibrium remains unaffected The value of K_p is increased 	2	<p>Consider this gas phase equilibrium system</p> $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2(\text{g})$ $\Delta H^\circ_{\text{rxn}} = +87.8 \text{ kJ/mol}$ <p>Which of the following statements is FALSE?</p> <ol style="list-style-type: none"> Increasing the system volume shifts the equilibrium to the right. Increasing the temperature shifts the equilibrium to the right. A catalyst speeds up the approach to equilibrium and shifts the position of equilibrium to the right. Increasing the temperature causes the equilibrium constant to increase
3	<p>For the equilibrium system:</p> $\text{N}_2\text{O}_4(\text{g}) + \text{heat} \rightleftharpoons 2\text{NO}_2(\text{g})$ <p>Which of the following factors would cause the value of the equilibrium constant to decrease?</p> <ol style="list-style-type: none"> Decreasing the temperature. Removing some NO_2. Adding a catalyst. Adding some He gas at constant volume. 	4	<p>For the reaction</p> $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g}) + \text{heat}$ <p>What conditions of pressure and temperature would be optimum for the synthesis?</p> <ol style="list-style-type: none"> Low T and low P Low T and high P High T and low P High T and high P
5	<p>Which of the following stresses would lead the exothermic reaction below to shift to the right?</p> $\text{A}(\text{g}) + \text{B}(\text{g}) \rightleftharpoons 3\text{C}(\text{g}) + \text{D}(\text{aq})$ <ol style="list-style-type: none"> Increasing $[\text{A}]$ Increasing $[\text{C}]$ Decreasing the volume Increasing the temperature 	6	<p>Which of the following does not affect the equilibrium of a reaction?</p> <ol style="list-style-type: none"> Adding heat Increasing the concentration of reactants Removing heat Adding a catalyst



7	<p>Consider the following reaction system, which has a K_{eq} of 1.35×10^4, taking place in a closed vessel at constant temperature.</p> $AX_5(g) + X_2(g) \rightleftharpoons AX_3(g)$ <p>Which of the following is NOT true about this system at equilibrium?</p> <ol style="list-style-type: none"> Increasing the volume will produce more AX_3. AX_5 is the main compound present. The rate of formation of AX_5 equals the rate of formation of AX_3 and X_2. Increasing the pressure will produce more AX_5. 	8	<p>Ammonia gas form according to this equation:</p> $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$ <p>Experimental data shows that the reaction shifts to the left at very cold temperatures. Using this information, what type of reaction occur?</p> <ol style="list-style-type: none"> Exothermic Maxwell Boltzmann-like Endergonic Endothermic
9	<p>Consider the following reaction:</p> $N_2O_4(g) \rightleftharpoons 2NO_2(g)$ <p>Which of the following changes would be expected to drive the reaction to the left?</p> <ol style="list-style-type: none"> An increase in pressure. A decrease in pressure. Addition of water to the reaction mixture. Reducing the amount of NO_2 in the reaction vessel. 	10	<p>In the reaction:</p> $2NO(g) + Cl_2(g) \rightleftharpoons 2NOCl(g)$ <p>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</p> <ol style="list-style-type: none"> an addition of moles of Cl_2. an increase of the $NOCl$ concentration. an addition of moles of $NOCl$. an increase of equilibrium constant K_c.