

# CHAPTER 17 STUDY GUIDE

## Chemical Equilibrium

### Section 17.1 Equilibrium: A State of Dynamic Balance

*In your textbook, read about chemical equilibrium.*

**Complete each statement.**

1. When a reaction results in almost complete conversion of reactants to products, chemists say the reaction goes to \_\_\_\_\_.
2. A reaction that can occur in both the forward and the reverse directions is called a(n) \_\_\_\_\_.
3. \_\_\_\_\_ is a state in which the forward and reverse reactions balance each other because they take place at equal rates.
4. At equilibrium, the concentrations of reactants and products are \_\_\_\_\_ but that does not mean that the amounts or concentrations are \_\_\_\_\_.
5. Equilibrium is a state of \_\_\_\_\_, not one of \_\_\_\_\_.

*In your textbook, read about equilibrium expressions and constants.*

**For each statement below, write *true* or *false*.**

6. The law of chemical equilibrium states that at a given pressure, a chemical system may reach a state in which a particular ratio of reactant to product concentrations has a constant value.
7. The equation  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \leftrightarrow 2\text{HI}(\text{g})$  is an example of a homogeneous equilibrium.
8. If an equilibrium constant has a value less than one, the reactants are favored at equilibrium.
9. The value for  $K_{\text{eq}}$  is constant only at a specific volume.
10. If the equilibrium constant for a reaction at 300 K is 49.7, the concentration of the reactants will be greater than the concentration of the products.
11. A heterogeneous equilibrium means that reactants and products are present in more than one state.
12. The product of the forward chemical reaction is HI, for the equilibrium expression:

$$K_{\text{eq}} = \frac{[\text{HI}]^2}{[\text{H}_2][\text{I}_2]}$$

# Study Guide Chemical Equilibrium Answer Key

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In a digital era where connections and knowledge reign supreme, the enchanting power of language has become more apparent than ever. Its ability to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Study Guide Chemical Equilibrium Answer Key**," written by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we shall delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

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