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| **. . . . . .**  **Chemistry B**  **Reaction Rates** | **Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_** |

Use complete sentences to answer these questions.

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| 1. | Reaction rate can refer to any of what three things? |
| 2. | Reaction rate is expressed in what units? |
| 3. | Define the term "activated complex". |
| 4. | How does a catalyst increase the rate of a chemical reaction? |
| 5. | What does an inhibitor do that changes the rate of a chemical reaction? |
| 6. | How do a thermodynamically stable substance and a kinetically stable substance differ? |
| 7. | Use one sentence to define the term "reaction mechanism". |
| 8. | Use one sentence to define the term "rate determining step". |
| 9. | What do the brackets in a rate expression represent? |

**Collision Theory**

1) Explain why all reactions have an activation energy, using your knowledge of collision theory.

2) Describe how the activation energy of a reaction affects the overall rate of the chemical reaction.

3) A rule of thumb used by organic chemists is that the rate of a chemical reaction can be doubled by increasing the reaction temperature by ten degrees Celsius. Explain this drastic increase in reaction rate using your knowledge of collision theory.

4) It has been observed that more gas station fires occur on hot days than on cold days. Explain this phenomenon using your knowledge of collision theory. (Hint: It’s not just the temperature increase that causes this!)

5) It has been observed with one variety of paint that the rate of paint drying can be drastically increased by adding a small amount of “accelerant”. Based on what you know of catalysts, is it reasonable to think of this accelerant as being a catalyst? Explain.