

Name _____

Period _____

Chemical Kinetics Homework #1
Collision Theory

1) Explain collision theory. What two things are required for an effective molecular collision (one which results in a reaction)?

2) What are the six factors that affect reaction rate?

a)

d)

b)

e)

c)

f)

3) Explain why the rate of a reaction is likely to be fastest at the beginning of the reaction.

4) Define activation energy.

5) Draw and label a potential energy diagram for

a) An exothermic reaction. Include the effect of a catalyst.

b) An endothermic reaction. Include the effect of a catalyst.

6) Draw a graph representing the number of molecules as a function of kinetic energy at two different temperatures (The Ice Cream Graph). Explain the significance of this graph.

7) Using what you know about the kinetic energy of molecules, explain why reaction rates vary with temperature.

8) Explain how each of the following affects the rate of a reaction:

a) Concentration of reactants

b) Temperature

c) Surface area of reactants

d) Catalyst

9) Describe four (4) observable properties of a reaction, which can be used to help determine the rate of a reaction.

10) When white phosphorus is exposed to air it reacts rapidly with oxygen and will ignite. What can you say about the magnitude of the activation energy for this reaction?