Name: _____ Class: _____ Date: _____ ID: A

## Practice Quiz 8 Mechanics (#5-1, #5-2, #5-3)

____ 1. (#5-1) A solid block of Iron is oxidizing to form iron (II) oxide. Which of the following would increase the rate of the reaction?

I. Breaking the iron into several chunks
II. Warming the iron.
III. Increasing the partial pressure of oxygen

a. I only
b. II only
c. I and II only
d. I, II, and III

____ 2.

$$A + B \longrightarrow C + D \text{ (Fast)}$$
$$D + B \longrightarrow E \text{ (Slow)}$$
$$C + F \longrightarrow E \text{ (Fast)}$$

(#5-2) Which of the following statements is true relative to the reaction mechanisms above?

I. "D" is an example of a reaction intermediate.
II. Doubling the concentration of A will double the reaction rate.
III. The overall reaction is $A + 2B + F \Rightarrow 2E$

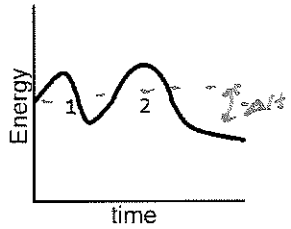
a. I and II only
b. I and III only
c. II and III only
d. I, II and III only

____ 3.

$$2N_2O_5(g) \Rightarrow 4NO_2(g) + O_2(g)$$

(#5-3) In an experiment the quantity of $NO_2$ being produced is "x". How might one express the concentration change of $O_2$ in terms of "x:

a. -.25x b. 4x c. x d. +.25x




____ 4. (#5-2) Which of the following is true relative to the energy diagram provided.

I. This reaction is utilizing a catalyst
II. This reaction has 2 elementary steps
III. This reaction is exothermic

a. I only
b. I and II only
c. II and III only
d. I, II, and III

Name: _____ ID: A

**Short Answer**

5.

$$A + B \Rightarrow C \text{ (fast)}$$

$$C + 2D \Rightarrow F \text{ (Slow)}$$

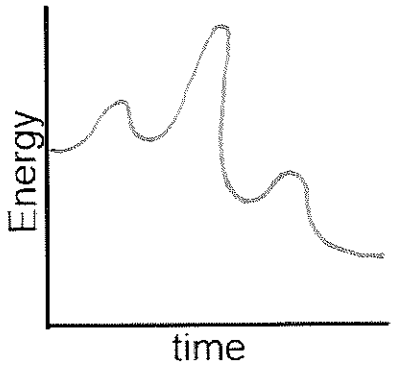
$$F + G \Rightarrow H + 2I + B \text{ (fast)}$$

1. (#5-2) What is the overall net reaction?

   $A + 2D + G \xrightarrow{B} H + 2I$

2. (#5-2) Which of the substances above is a:

   a. Catalyst: B b. Intermediate: C, F




3. (#5-2) Determine the rate law for the reaction mechanism provided.

   $Rate = K[A][B][D^2][G]^0$

   ← Can leave off.

4. (#5-2) In the graph to the right propose an energy diagram that could represent the reaction mechanism above.

5. (#5-1) A scientist would like to increase the rate of this reaction process. Propose 2 ways one might accomplish this.

   - ↑T
   - ↑ conc. A, B, D

(#5-3) If A is being consumed at a rate of 1.5M/s what is the rate of disappearance of D?

$$1.5 \cdot \frac{2}{1} = \frac{3.0 M/s}{L\,S}$$