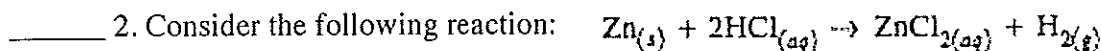


Name: _____

Chemistry 12
Unit 1.1-1.8 "Quest"

- _____ 1. Which of the following could represent the units for reaction rate?
 A. g / mL B. g / min C. g / mol D. mol / L



Which of the following would increase the reaction rate of the forward reaction?

- A. an increase in pressure B. an increase in temperature
 C. an increase in the concentration of H_2 D. an increase in the concentration of $ZnCl_2$

- _____ 3. Consider the following reactions in *open* systems:

I.	$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$
II.	$CaCO_{3(s)} \rightarrow CaO_{(s)} + CO_{2(g)}$
III.	$CaO_{(s)} + SiO_{2(s)} \rightarrow CaSiO_{3(s)}$
IV.	$AgNO_{3(aq)} + NaCl_{(aq)} \rightarrow NaNO_{3(aq)} + AgCl_{(s)}$

In which of the above could the reaction rate be determined by

$$\frac{\Delta \text{ mass of system}}{\Delta \text{ time}} ?$$

- A. I B. II C. III D. IV

- _____ 4. A student placed 3.0 g of Mg into some HCl in two different experiments. In each case, it reacted according to the following equation:



In the first experiment, it took 3.2 minutes for all of the Mg to react. In the second experiment, it took 5.4 minutes for all of the Mg to react. Which of the following could account for the change in rate of the second experiment?

- A. A catalyst was added. B. The Mg was powdered.
 C. The $[H_2]$ was decreased. D. The temperature was decreased.

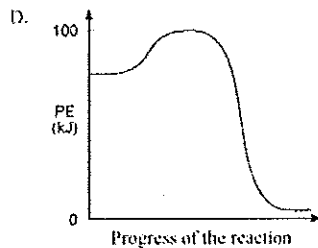
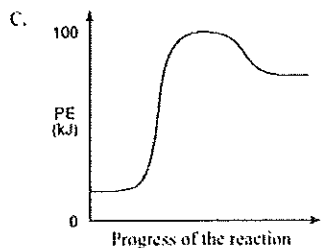
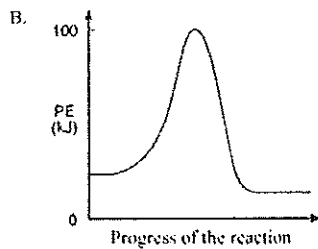
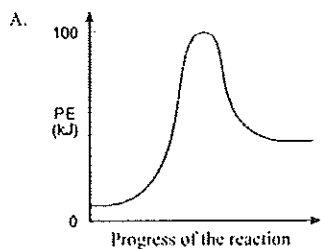
- _____ 5. In general, a chemical reaction requiring a large activation energy will proceed

- A. at a fast rate. B. at a slow rate.
 C. only at low temperatures. D. only at low concentrations.

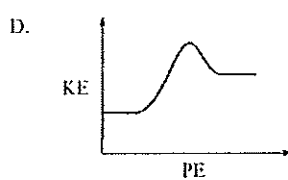
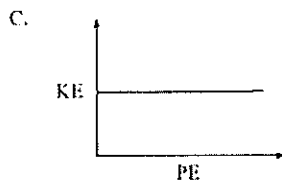
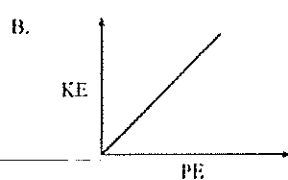
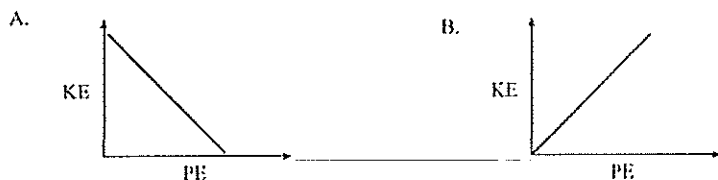
- _____ 6. Which of the following describes the energy of colliding particles as reacting molecules approach each other?

	KE	PE
A.	decreases	increases
B.	increases	decreases
C.	decreases	remains constant
D.	remains constant	increases

7. Which of the following corresponds to the fastest reaction at room temperature?

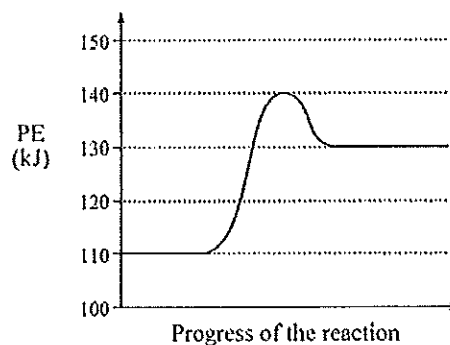


8. The changes in PE and KE, as reactant molecules approach each other, can be represented by:

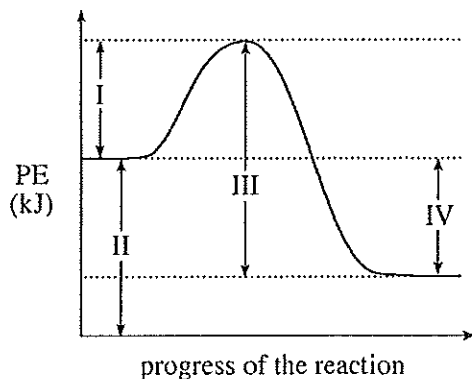


9. Which of the following describes the system on the right?

	Reaction	Activation Energy (kJ)	ΔH (kJ)
A.	reverse	10	-20
B.	reverse	10	-30
C.	forward	30	+10
D.	forward	20	+30

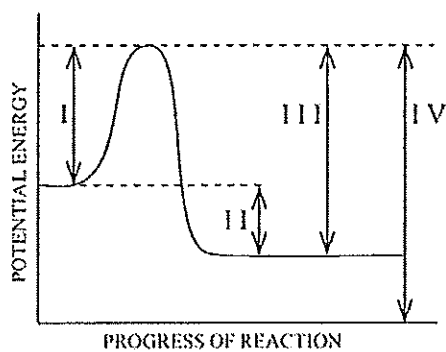


10. Which of the following represents the heat of reaction, ΔH , for the forward reaction?



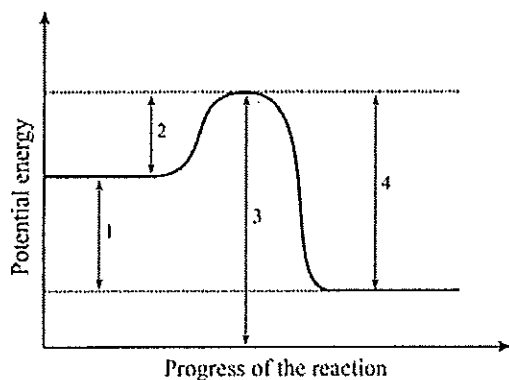
- A. I B. II C. III D. IV

11. The energy interval that represents the activation energy for the reverse reaction is:



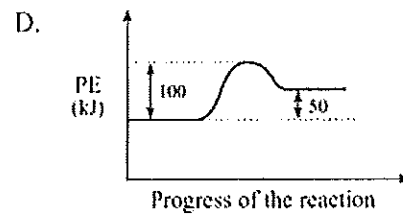
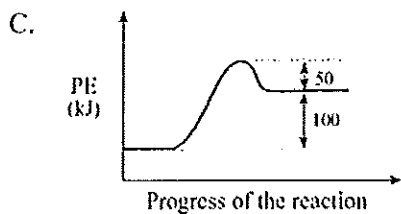
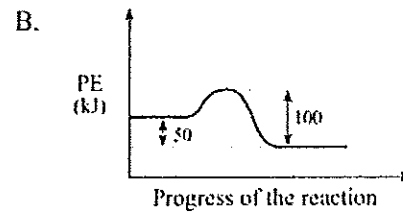
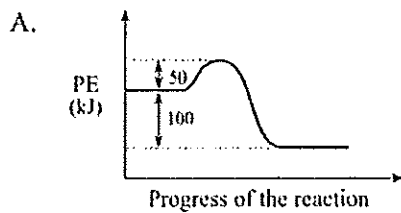
- A. I B. II C. III D. IV

12. The interval representing ΔH for the reverse reaction is

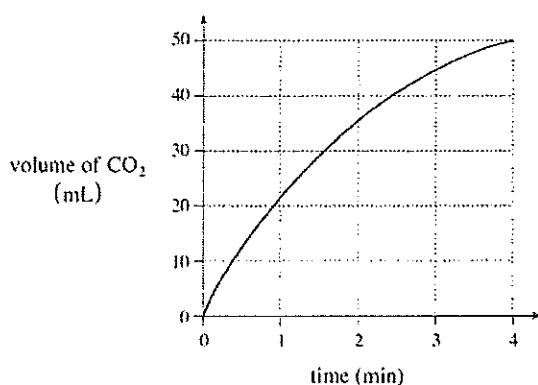
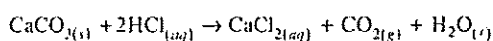


- A. 1 B. 2 C. 3 D. 4

13. A forward reaction has an activation energy of 50 kJ and a ΔH of -100 kJ. The PE diagram which describes this reaction is:



_____ 14. The average rate of reaction is greatest in the time interval



- A. 0-1minute B. 0-2minutes C. 0-3minutes D. 0-4minutes

_____ 15. Which of the following are key factors of successful collisions?

- I. Sufficient KE II. Increased # of collisions
III. Increased concentration IV. Correct alignment

- A. I only B. II only C. I & IV D. I, II & IV E. All of the above

_____ 16. What happens to the energy of reactant molecules as they approach one another?
{Potential Energy; Kinetic Energy}

- A. increases; decreases B. decreases; decreases
C. decreases; increases D. increases; increases

_____ 17. Consider the following reaction: $2\text{H}_2\text{O}_2(\text{aq}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$

When 1.0 g of KI is added to the H_2O_2 , bubbles of O_2 are produced at an increased rate. When the reaction is complete, the mass of KI is 1.0 g. The KI is a

- A. Product B. Catalyst C. Reactant D. Reaction Intermediate

_____ 18. Which of the following reactions is the slowest at room temperature?

- A. $\text{Zn}_{(s)} + \text{S}_{(s)} \rightarrow \text{ZnS}_{(s)}$ B. $\text{Ba}^{2+}_{(aq)} + \text{SO}_4^{2-}_{(aq)} \rightarrow \text{BaSO}_{4(s)}$
C. $\text{NH}_3(g) + \text{HCl}(g) \rightarrow \text{NH}_4\text{Cl}(g)$ D. $2\text{Ag}^{+}_{(aq)} + \text{CO}_3^{2-}_{(aq)} \rightarrow \text{Ag}_2\text{CO}_3(s)$

_____ 19. Activation energy can be described as the

- A. energy difference between the reactants and the products.
B. energy of motion.
C. energy of the activated complex.
D. energy difference between the reactants and the activated complex.

_____ 20. As you increase the temperature of a reaction, the

- A. rate decreases and the time required for the reaction increases.
B. rate increases and the time required for the reaction increases.
C. rate increases and the time required for the reaction decreases.
D. rate decreases and the time required for the reaction decreases.