

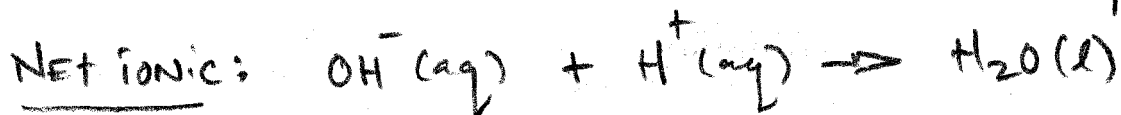
Chem. 6A Last Quiz!!!
15 points

Name: KEY
Section: _____

1. Nomenclature (1 point)

(a) Fe_2O_3 Iron(III) oxide (b) phosphorous trichloride PCl_3

2. (2 points) Write the net ionic equation that results when solutions of hydrochloric acid and sodium hydroxide are mixed. $\text{NaOH(aq)} + \text{HCl(aq)} \rightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)}$



(3) (3 points) Consider the following reaction: $\text{A} + \text{B} \rightarrow \text{C}$

Pure A and B are initially mixed together at concentrations of $\text{A} = \text{B} = 0.400 \text{ M}$. After 9.00 minutes the concentration of $\text{A} = 0.150 \text{ M}$. Calculate the average rate of reaction over this time period.

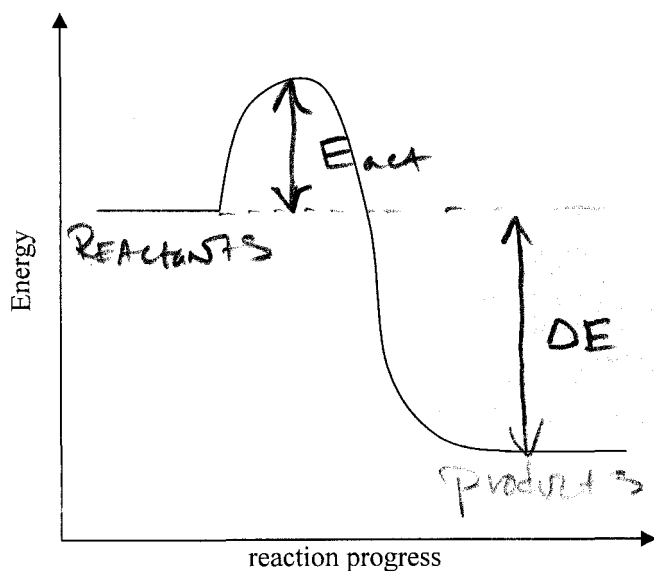
$$\text{RATE} = - \frac{\Delta[\text{A}]}{\Delta t} = - \frac{0.150 \text{ M} - 0.400 \text{ M}}{9.00 \text{ min}} = 2.7778 \times 10^{-2} \text{ M min}^{-1}$$

(3sf) answer: $2.78 \times 10^{-2} \text{ M min}^{-1}$

(4) (2 point) List two factors that will affect the rate of a reaction in the gas phase.

TEMPERATURE, Concentration, Volume, Catalyst ...
& _____

(5) (3 points) Label the following diagram with the following:



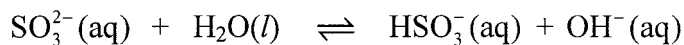
(a) Label the reactants and products

(b) Label the activation energy

(c) Is the reaction Endothermic or Exothermic?

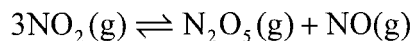
(circle your choice)

(6) (1 point) Label which chemical species is the acid or base on either side of the reaction given below.



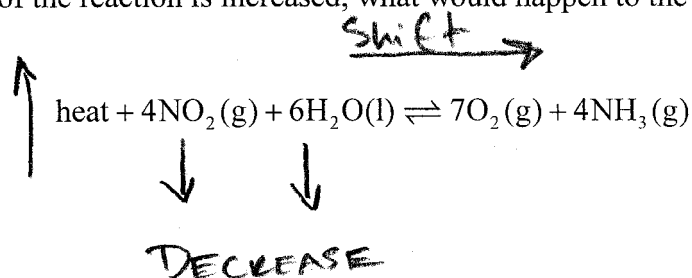
BASE Acid Acid BASE

(7) (1 point) Write the equilibrium constant expression (K) for the following reaction:



$$K = \frac{[\text{N}_2\text{O}_5][\text{NO}]}{[\text{NO}_2]^3}$$

(8) (2 point) Consider the reaction below initially at equilibrium. According to Le Châtelier's principle, if the temperature of the reaction is increased, what would happen to the concentration of the reactants? Explain.



Increasing the temperature will shift the reaction to the right which causes more reactants to react, thus decreasing the concentration.