

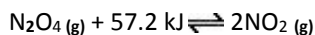
Acids/Bases, Kinetics, Equilibrium, IMF Study Guide

- What is an electrolyte?
- What three types of solutions are electrolytes?
- Which of the following are electrolytes (circle your responses)?

a. Acetic acid	b. Sucrose	c. Ethyl alcohol
d. NaOH	e. NaF	f. NH_4NO_3
		g. H_2SO_4
- What do acids do with protons (H^+)? What do bases do with protons (H^+)?
- List the properties of acids:
- List the properties of bases:
- What is the difference between strong and weak acids?
- A solution with a pH of 4 is (acidic/basic) and has an H^+ concentration that is _____ times (greater/less) than a solution with a pH of 7.
- What two things need to happen for a collision to be EFFECTIVE?
- What is activation energy and what does it have to do with reactions?
- As a reaction happens, the amount of _____ decrease and the amount of _____ increase.
- Reaction rates depend on the amount of _____ happening at a certain time.
- Fill in the following chart:

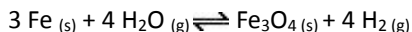
If... Then...	the concentration of reactants increases	the concentration of reactants decreases	the pressure of gases increases	the pressure of gases decreases	the temperature increases	the temperature decreases
the reaction rate...						

- Explain how a catalyst works (explain using activation energy and reaction rate).
- When a reaction is at equilibrium, the forward and reverse reaction rates are _____ and the product and reactant concentrations are _____.
- For the following reaction, does the equilibrium shift to the left or to the right when...



- the press. is decreased, the equilibrium shifts to the _____ and the $[\text{N}_2\text{O}_4]$ _____.
- the temp. is increased, the equilibrium shifts to the _____ and the $[\text{NO}_2]$ _____.

- For the following **EXOTHERMIC** reaction, does the equilibrium shift to the left or to the right when...



- the press. is increased, the equilibrium shifts to the _____ and the $[\text{Fe}_3\text{O}_4]$ _____.
- the temp. is decreased, the equilibrium shifts to the _____ and the $[\text{H}_2]$ _____.

- Which state of matter has the strongest intermolecular forces: liquid, gas, solid.
- Which state(s) of matter holds its shape? _____ ; shape of its container? _____
- What are the three intermolecular forces?
- What intermolecular forces do the following substances have? CH_4 , HBr , N_2 , NH_3 , CO_2 , He , HI
- Rank the substances in question #22 from lowest boiling point to highest boiling point.
- If the solubility of KNO_3 at 50°C is 80.g $\text{NaCl}/100.\text{g}$ of water, how much KNO_3 can dissolve in 50.g of water?
- Mark the triple point in the phase diagram below. Also, know how to identify solid, liquid, gas regions as well as the melting/boiling points.
- What are the melting and boiling points of the heating curve below? Label the solid, liquid and gas regions.

