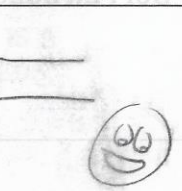
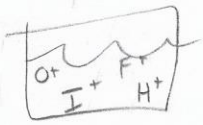
Chapters 14 and 15 key

CHAPTERS 14 & 15

CHAPTER 14 CONTINUED:

TERM	DEFINITION	IMAGE
EQUIVALENCE POINT	The # of OH^- ions is equal to the # of H^+ ions	
INDICATOR	Dye that changes color depending on pH.	
END POINT	Point @ which the indicator changes color depending on pH.	
STRONG ACID/ BASE	Will Completely ionize in water	
WEAK ACID. BASE	usually have to accept a H^+ ion from H_2O to Produce an OH^- ion.	$H_2O^+ \rightarrow HO + HO^-$
ACIDIC SOLUTION	Concentration of H_3O^+ is greater than OH^- concentration	$H_3O^+ > OH^-$
BASIC SOLUTION		

	Concentration of OH^- is larger than H_3O^+ concen.	$OH^- > H_3O^+$
BUFFER SOLUTION	resists changes in pH when small amounts of Acids or bases are added.	Stop pH = ∅

ILLUSTRATE A PH SCALE BELOW:

<0 ---------- 7 ---------- 14>

Acid Neutral Base

MATH:

1. **CALCULATE THE POH OF AN ACIDIC SOLUTION WITH AN H3O+ OF 1.456X10^-15**

$pH = -\log[1.456 \times 10^{-15}]$

$PH = -15.16$

$14 = PH + POH$

$POH = 14 - PH$

$14 - 15.16$

$POH = -1.16$

2. **DETERMINE THE PH OF AN ACIDIC SOLUTION WITH AN OH CONCENTRATION OF 0.2314X 10^-3.**

10.364 M

$POH = -\log[OH]$

$POH = -\log[0.2314 \times 10^{-3}]$

$POH = 3.635$

$14 = POH + PH$

$PH = 14 - POH$

$14 - 3.635$

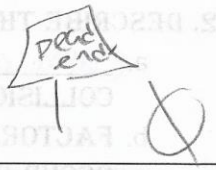
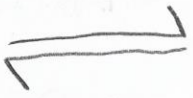
CHAPTER 15:

1. Rate OF A Chemical reaction IS A MEASURE OF HOW FAST A REACTION PROCEEDS.

2. DESCRIBE THE COLLISON THEORY:
   a. Chemical reactions OCCUR THROUGH COLLISIONS.
   b. FACTORS THAT AFFECT HOW MANY COLLISIONS
   c. OCCUR IN A FIXED PERIOD:
      i. Activation energy
      ii. Orientation.
      iii. Temperature
      iv. Concentration
      v. Catalyst.

3. FILL IN THE TABLE BELOW:

TERM	DEFINITION	IMAGE
ACTIVATION ENERGY	minimum amount of energy needed to break bonds between atoms of reactants.	
ORIENTATION		

	Atoms must align properly + break + form bonds.	(+) → ← (−)
CATALYST	Provides an alternative pathway w/ lower activation energy	
CHEMICAL EQUILIBRIUM	No further change in concentrations of reactants + products	
REVERSIBLE REACTION	Have a forward + reverse reaction.	

MATH:

1. **WHAT IS THE KC FOR THE FOLLOWING REACTION AT EQUILIBRIUM IF THE CONCENTRATIONS ARE AS FOLLOWED: H= 0.200 M, I2= 0.300M, AND HI= 2.05M?**
   a. **FORMULA: H2 +I2 <----------> 2HI**

H-2 ✓ H-2
I-2 I-2

$$K_c = \frac{[\text{Products}]}{[\text{reactants}]} = \frac{[C]^c[D]^d}{[A]^a[B]^b}$$

$$\frac{[2HI]^2}{[H]^1[I]^1} = \frac{[2.05]^2}{[0.200M][0.300M]} = \frac{4.2025}{0.06}$$

$K_c = 70.04M$