Name:_____
Blk:____Date:_____

Chemistry 12
ACIDS, BASES AND SALTS UNIT
Prescribed Learning Outcomes

Your weekly "WAY BACK" Quizzes will be based on one of the following PLO's (that have been covered in the course.) It is advised that you should complete each corresponding PLO after the lesson that it is taught in, as part of your homework. At the end of each unit (and the course) the answered PLO's will serve as an excellent study guide.

PART I

J: Acids, Bases, and Salts (Properties and Definitions)
It is expected that students will:
J1. identify acids and bases through experimentation
J2. list general properties of acids and bases
J3. write balanced equations representing the neutralization of acids by bases in solution
J4. define Arrhenius acids and bases
J5. write names and formulae of some common acids and bases and outline some of their common properties, uses, and commercial names
J6. define Brönsted-Lowry acids and bases
J7. identify Brönsted-Lowry acids and bases in an equation
J8. write balanced equations representing the reaction of acids or bases with water
J9. identify an H_30^+ ion as a protonated H_20 molecule that can be represented in shortened form as $H^{+(}aq)$
J10. define conjugate acid-base pair
J11. identify the conjugate of a given acid or base
J12. show that in any Brönsted-Lowry acid-base equation there are two conjugate pairs present

K: Acids, Bases, and Salts (Strong and Weak Acids and Bases)
It is expected that students will:
K1. relate electrical conductivity in a solution to the concentration of ions
K2. classify an acid or base in solution as either weak or strong by comparing conductivity
K3. define a strong acid and a strong base
K4. define a weak acid and a weak base

K5. write equations to show what happens when strong and weak acids and bases are dissolved in water (dissociation, ionization)
K6. compare the relative strengths of acids or bases by using a table of relative acid strengths
K7. identify and explain why the strongest acid in aqueous solutions is H_30^+ and the strongest base in aqueous solutions is OH^-
K8. predict whether products or reactants are favoured in an acid-base equilibrium by comparing the strength of the two acids (or two bases)
K9. compare the relative concentrations of H_30^+ (or OH^-) between two acids (or between two bases) using their relative positions on an acid strength table
K10. define amphiprotic
K11. identify chemical species that are amphiprotic
K12. describe situations in which H_20 would act as an acid or base

L: Acids, Bases, and Salts (Kw , pH, pOH)
It is expected that students will:
L1. write equations representing the ionization of water using either H_30^+ and OH^- or H^+ and OH^-
L2. write the equilibrium expression for the ion product constant of water, Kw
L3. predict the effect of the addition of an acid or base to the equilibrium system: $2H_2O(l) \leftarrow \rightarrow H_30^+(aq)+OH^-(aq)$
L4. state the relative concentrations of H_30^+(and OH^- in acid, base, and neutral solutions
L5. state the value of Kw at 25°C
L6. describe the variation of the value of Kw with temperature
L7. calculate the concentration of H30+ (or OH-) given the other, using Kw
L8. describe the pH scale with reference to everyday solutions
L9. define pH and pOH
L10. define p Kw , give its value at 25°C, and its relation to pH and pOH
L11. perform calculations relating pH, pOH, H_30^+, and OH^-
L12. calculate H_30^+ or OH^- from pH and pOH

M: Acids, Bases, and Salts (Ka and Kb Problem Solving)
It is expected that students will:
M1. write Ka and Kb equilibrium expressions
M2.relate the magnitude of Ka or Kb to the strength of the acid or base
M3. given the Ka, Kb, and initial concentration, calculate any of the following:
* H_30^+
* OH^-
* pH
* pOH

M4. calculate the value of Kb for a base given the value of Ka for its conjugate acid (or vice versa)
M5. calculate the value of Ka or Kb given the pH and initial concentration