Edvantage Science AP Chemistry 2

Chapter 6

Traffic Light Study Guide

Section	Page	I can ...	Red	Amber	Green
6.1	332	Define *hydrolysis*.	○	○	○
	333 - 342	Identify any given salt as neutral, acidic, or basic.	○	○	○
	333 - 342	Identify the ion and provide the hydrolysis reaction responsible for the acidity or alkalinity of any salt.	○	○	○
	334	Calculate the pH of a basic salt solution.	○	○	○
	336	Calculate the pH of an acidic salt solution.	○	○	○
	339 - 340	Determine whether an *amphoteric salt*, in particular, is acidic or basic. A compound that is *amphoteric* contains or consists of two independent species, one that is an acid and one that is a base.	○	○	○
	341 - 342	Determine whether an *amphiprotic ion* is acidic or basic.	○	○	○
6.2	348	Define a *buffer*.	○	○	○
	349 - 350	Describe the composition of a buffer.	○	○	○
	350 - 352	Describe and explain how an acidic buffer works.	○	○	○
	354 - 356	Describe and explain how a basic buffer works.	○	○	○
	357	(Extension) State the *Henderson-Hasselbalch equation*.	○	○	○
	357	Define *buffer capacity*. State and explain what it depends upon.	○	○	○
	357 - 358	Given the desired pH of a buffer, describe how to prepare it.	○	○	○
	359 - 360	Write the chemical equation for the *hemoglobin/oxyhemoglobin* equilibrium present in our blood and explain why a steady pH is critical to this equilibrium.	○	○	○
	360	Write the chemical equation for one buffer system that helps keep our blood pH relatively constant.	○	○	○
6.3	368	Supply 3 criteria that a reaction must satisfy to be used for a *titration*.	○	○	○
	368	Define the *equivalence point* of an acid-base titration.	○	○	○
	369 - 370	Describe an acid-base titration using the terms, *burette, pipette, flask, titrant, standard solution, analyte, indicator,* and *transition point*.	○	○	○
	370 - 371	List 4 properties of a *primary standard*, state its purpose, and provide an example of an acidic and a basic primary standard.	○	○	○
	372 - 376	Use titration data to calculate concentration, volume, or molar mass.	○	○	○
	377 - 378	Use data from the titration of an impure acid or base to calculate the acid or base's percent purity.	○	○	○

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6.4	385 - 388	Describe how *acid-base indicators* work.	○	○	○
	386 - 387	Calculate an indicator's K_a and state how to choose a suitable indicator for a titration.	○	○	○
	388 - 389	Determine the colour of a mixture of indicators in a solution of given pH (and vice-versa).	○	○	○
	391 - 394	Calculate the key points of a strong acid – strong base titration (initial, ½ equiv. pt., equiv. pt., & excess titrant) and draw its curve.	○	○	○
	395 - 401	Calculate the key points of a weak acid – strong base titration (initial, ½ equiv. pt., equiv. pt., & excess titrant) and draw its curve.	○	○	○
	401	Describe and explain the differences between strong acid-strong base titration curves and weak acid-strong base titration curves.	○	○	○
	403 - 407	Calculate the key points of a weak base – strong acid titration (initial, ½ equiv. pt., equiv. pt., & excess titrant) and draw its curve.	○	○	○
	391, 395, 403	Write formula and ionic equations for neutralization reactions.	○	○	○
6.5	415 - 416	Describe the reactions of metal oxides with water. Identify a metal oxide as being a *basic anhydride,* an *acidic anhydride* or *amphoteric*.	○	○	○
	417 - 418	Describe the reactions of non-metal oxides with water. Describe the general periodic trend pertaining to non-metal oxides.	○	○	○
	419 - 423	Outline the causes and consequences of *acid rain*, citing at least two chemical reactions involved.	○	○	○