Beer' s law and colorimetry lab answers

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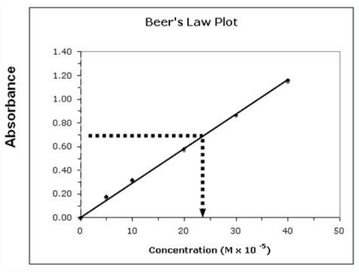

Standard mg/L	Absorbance at 420 nm
0	0
5	0.12
10	0.23
25	0.57
50	1.2

Clotting

PT	11.5 – 15.5 secs
APTT	30-40 secs
TT	25-35

Biochemistry

Urea		2.5 – 6.7 mmol/L
Cr	Men	68 – 104 µmol/L
	Women	68 – 98 µmol/L
Na^+		135-145 mmol/L
K^+		3.5 – 5 mmol/L
Ca^{2+}		2.05 – 2.6 mmol/L
Mg^{2+}		0.75-1.05 mmol/L
CK		24-195 U/L
LDH		50-250 U/L
Amylase		60-180 U/L
Lactate		0.6-1.8 mmol/L
Urate		0.23-0.46 mmol/L

Inflammatory Markers

ESR	Men	<55 or Age(years) / 2 (mg/L)
	Women	<22 or Age(years)+10 / 2 (mg/L)
CRP		<5 mg/L

LFT's

Fats

Cholesterol	>5.2 mmol/L
Triglycerides	0.45-1.69 mmol/L
LDL	<3.36 mmol/L
HDL	>1.55 mmol/L
Total / HDL	>5

Diabetes

Random Gluc	<11 mmol/L
Fasting Gluc	<8 mmol/L
HbA_{1c}	3.8-6.4%

CSF

Protein	<0.45g/L
Glucose	2.5-4.4 mmol/L (~1/3 of plasma level)
Cells	<5 WCC/ml
Pressure	50-180 mmHg

Urology

PSA <3 mmol/L. Age dependent – older Men may have high level but no disease

Urine Levels

Creatinine 500-2000mg/day
Usually higher in Men due to

LABS	NORMAL RANGE
Na+	136-145
K+	3.5-5.0
Cl+	98-106
Ca+	9.0-10.5
Albumin	3.5-5.0. Liver
Crea	0.7-1.3. Kidney
BUN	10-20. Kidney
Glucose	70-110
WBC	5000-10000
RBC	(M)4.7-6.1(F)4.2-5.4
Hgb	(M)14-18(F)12-16
Hct	(M)42-52(F)37-47
PLTS	150,000-400,000.ASA
PT	11-12.5
PTT	60-70. Heparin
INR	0.9-1.2. Coumadin
ALT	(M)10-40(F)7-35.Liv
AST	12-31. Liver

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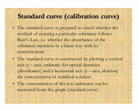

Beer-lambert law questions and answers. Beer-lambert law problems and solutions. Beer's law and its limitations.

The Determination of an Equilibrium Constant Computer 10 Chemical reactions occur to reach a state of equilibrium. The equilibrium state can be characterized by quantitatively defining its equilibrium More information EXPERIMENT 11 UV/VIS Spectroscopy and Spectrophotometry: Spectrophotometric Analysis of Potassium Permanganate Solutions. Outcomes After completing this experiment, the student should be able to: 1. Prepare More information Determining the Free Chlorine Content of Swimming Pool Water Computer 33 Physicians in the nineteenth century used chlorine water as a disinfectant. Upon the discovery that certain diseases were transmitted More information 2 Spectrophotometry and the Analysis of Riboflavin Objectives: A) To become familiar with operating the Platereader; B) to learn how to use the Platereader in determining the absorption spectrum of a compound More information Purpose To become familiar with using a spectrophotometer and gain an understanding of Beer s law and it s relationship to solution concentration. Introduction Scientists use many methods to determine More information 1 Learning Outcomes EXPERIMENT B4: CHEMICAL EQUILIBRIUM Upon completion of this lab, the student will be able to: 1) Analyze the absorbance spectrum of a sample. 2) Calculate the equilibrium constant for More information Determining the Quantity of Iron in a Vitamin Tablet Computer 34 As biochemical research becomes more sophisticated, we are learning more about the role of metallic elements in the human body. For example, More information Case File 9 Killer Cup of Coffee: Using colorimetry to determine concentration of a poison Determine the concentration of cyanide in the solution. A Killer Cup of Coffee? SOUTH PAINTER, Tuesday: It was More information Case File 9 Killer Cup of Coffee: Using colorimetry to determine concentration of a poison Determine the concentration of cyanide in the solution. A Killer Cup of Coffee? GlobalTech manager dies SOUTH More information Spectrophotometry and the Beer-Lambert Law: An Important Analytical Technique in Chemistry Jon H. Hardesty, PhD and Bassam Attili, PhD Collin College Department of Chemistry Introduction: In the last lab More information Shimadzu UV-VIS User s Guide 1) Push the F4 button on the UV-VIS instrument keypad. This will enable PC control. Push the F4 Button 2) Log into the UV-VIS software with your username and password. 3) After More information The Determination of an Equilibrium Constant Chemical reactions occur to reach a state of equilibrium. The equilibrium state can be characterized by quantitatively defining its equilibrium constant, K More information Using the Spectrophotometer Introduction In this exercise, you will learn the basic principals of spectrophotometry and and serial dilution and their practical application. You will need these skills to More information A Beer s Law Experiment Introduction There are many ways to determine concentrations of a substance in solution. So far, the only experiences you may have are acid-base titrations or possibly determining More information Cautions: 6 M hydrochloric acid is corrosive. Purpose: To colorimetrically determine the mass of iron present in commercial vitamin tablets using a prepared calibration curve. Introduction: Iron is considered More information Absorbance Spectrophotometry: Analysis of FD&C Red Food Dye #40 Note: there is a second document that goes with this one! 2046 - Absorbance Spectrophotometry - Calibration Curve Procedure. The second document More information Reaction Stoichiometry and the Formation of a Metal Ion Complex Objectives The objectives of this laboratory are as follows: To use the method of continuous variation to determine the reaction stoichiometry More information C-1. Vernier Tutorial Introduction: In this lab course, you will collect, analyze and interpret data. The purpose of this tutorial is to teach you how to use the Vernier System to collect and transfer More information Experiment 11 INTRODUCTION TO SPECTROMETRY Portions adapted by Ross S. Nord and Colleagues, Chemistry Department, Eastern Michigan University from ANAL 043, written by Donald F. Clemens and Warren A. McAllister, More information Name: Section: Date: 2C: One in a Million Drinking water can contain up to 1.3 parts per million (ppm) of copper and still be considered safe. What does parts per million mean? Both living things and the More information Chemistry 111 Lab: Intro to Spectrophotometry Page E-1 SPECTROPHOTOMETRY Absorption Measurements & their Application to Quantitative Analysis study of the interaction of light (or other electromagnetic More information 2-1 Experiment 2 Kinetics II Concentration-Time Relationships and Activation Energy Introduction: The kinetics of a decomposition reaction involving hydroxide ion and crystal violet, an organic dye used More information COLORIMETER Description 0358BT Figure 1. The Colorimeter Introduction The Colorimeter is designed to determine the concentration of a solution by analyzing its color intensity. Monochromatic light from More information 1 Ultraviolet-Visible (UV-Vis) Spectroscopy Background Information Instructions for the Operation of the Cary 300 Bio UV-Visible Spectrophotometer See the Thermo OMNIC Help reference on page 49. Ultraviolet-Visible More information 1 Experiment C-31 Color Absorption Objectives To understand the concepts of light waves and color. To investigate how red, green and blue liquids absorb light of different wavelengths. To learn about colorimeter More information Lab #11: Determination of a Chemical Equilibrium Constant Objectives: 1. Determine the equilibrium constant of the formation of the thiocyanatoiron (III) ions. 2. Understand the application of using a More information CHEM 161: Beer s Law and Analysis of a Sports Drink Introduction Although sunlight appears white, it contains a spectrum of colors. A rainbow actually shows this range of colors in visible light: violet, More information Bio 15B Excel Tutorial 1 Excel Tutorial As part of your laboratory write-ups and reports during this semester you will be required to collect and present data in an appropriate format. To organize and More information Phenolphthalein-NaOH Kinetics Phenolphthalein is one of the most common acid-base indicators used to determine the end point in acid-base titrations. It is also the active ingredient in some laxatives. More information Exercise 2 Reaction of Blue Food Dye with Bleach 2 Introduction In the experiment, you will study the rate of the reaction of FD&C Blue #1 (Blue #1 is denoted by E number E133 in food stuff) with sodium More information Absorbance Spectrophotometry: Analysis of FD&C Red Food Dye #40 Calibration Curve Procedure Note: there is a second document that goes with this one! 2046 - Absorbance Spectrophotometry. Make sure you More information Lab: Colorimetric Analysis of Iron in Iron Supplements Purpose To determine the mass of iron in one adult dose of either a ferrous sulfate or ferrous gluconate iron supplement using a colorimetric technique. More information USING EXCEL ON THE COMPUTER TO FIND THE MEAN AND STANDARD DEVIATION AND TO DO LINEAR REGRESSION ANALYSIS AND GRAPHING Dr. Susan Petro TABLE OF CONTENTS Topic Page number 1. On following directions 2 2. More information Chapter 5 -- The Spectrophotometric Determination of the ph of a Buffer NAME: Lab Section: Date: Sign-Off: Chapter 5 -- The Spectrophotometric Determination of the ph of a Buffer Introduction Weak acids, More information LIGHTSTICK KINETICS From Advancing Science, Gettysburg College INTRODUCTION: General background on rate, activation energy, absolute temperature, and graphing. THE RATE LAW: The rate of a chemical reaction More information EXPERIMENT 5 Molecular Absorption Spectroscopy: Determination of Iron With 1,10-Phenanthroline UNKNOWN Submit a clean, labeled 100-mL volumetric flask to the instructor so that your unknown iron solution More information INTRODUCTION Phosphates (ortho- and total) Phosphorus is an essential nutrient for all aquatic plants and algae. Only a very small amount is needed, however, so an excess of phosphorus can easily occur. More information Experiment 13H FV 1/25/2011(2-run) THE REACTION OF RED FOOD COLOR WITH BLEACH 1 PROBLEM: Determine the rate law for the chemical reaction between FD&C Red Dye #3 and sodium hypochlorite. LEARNING OBJECTIVES: More information Solubility Product Constants PURPOSE To measure the solubility product constant (K sp) of copper (II) iodate, Cu(IO 3) 2. GOALS 1 To measure the molar solubility of a sparingly soluble salt in water. More information Flash MX Image Animation Introduction (Preparing the Stage) Movie Property Definitions: Go to the Properties panel at the bottom of the window to choose the frame rate, width, height, and background color More information Name: LEARNING GOALS: Chemistry 118 Laboratory University of Massachusetts Boston Beer s Law 1. Become familiar with the concept of concentration and molarity. 2. Become familiar with making dilutions More information Experiment #5: Qualitative Absorption Spectroscopy One of the most important areas in the field of analytical chemistry is that of spectroscopy. In general terms, spectroscopy deals with the interactions More information 1234 Hach Hall 515-294-5805 www.cif.iastate.edu Cary 100 Bio UV-Vis Operating Instructions 09/25/2012 S.V. Location: Contact: 1240 Hach Hall Steve Veysey, 1234 Hach Hall Safety All researchers working More information Beckman Coulter DTX 880 Multimode Detector Bergen County Technical Schools Stem Cell Lab Room 213 Beckman Coulter DTX 880 Multimode Detector Information The Beckman Coulter DTX 880 Multimode Detector is More information Enzyme Action: Testing Catalase Activity (Method 1 O 2 Gas Sensor) Computer 2 Many organisms can decompose hydrogen peroxide (H 2 O 2) enzymatically. Enzymes are globular proteins, responsible for most More information Measuring Manganese Concentration Using Spectrophotometry Objectives To use spectroscopy to determine the amount of Manganese is an unknown sample. Scenario Your have just joined a "Green Team" at SMC More information Scientific Graphing in Excel 2010 When you start Excel, you will see the screen below. Various parts of the display are labelled in red, with arrows, to define the terms used in the remainder of this overview. More information Creating a Pie Graph Step-by-step directions In this example, Mrs. Smith is looking to create graphs that represent the ethnic diversity of the 24 students in her 4 th grade class. 1. Enter Data A. Open More information Enzyme Action: Testing Catalase Activity Experiment 6A Many organisms can decompose hydrogen peroxide (H 2 O 2) enzymatically. Enzymes are globular proteins, responsible for most of the chemical activities More information Lab 2 Spectrophotometric Measurement of Glucose Objectives 1. Learn how to use a spectrophotometer. 2. Produce a glucose standard curve. 3. Perform a glucose assay. Safety Precautions Glucose Color Reagent More information SYNTHESIS AND ANALYSIS OF SILVER/GOLD NANOPARTICLES Background Shelby Hatch and George Schatz Northwestern University, Evanston, IL 60208 All physical and chemical properties are size dependent, and the More information How uch Phosphate is the Body Being Exposed to During a Lifetime by Showering? Lab 5: Quantitative Analysis- Phosphates in Water By: A Generous Student LBS 171L Section 9 TA: Dana October 7, 005 [Note: More information What s in the Mix? Liquid Color Spectroscopy Lab (Randy Landsberg & Bill Fisher) Introduction: There is more to a color than a name. Color can tell us lots of information. In this lab you will use a spectrophotometer More information 1 Experiment 17: Potentiometric Titration Objective: In this experiment, you will use a ph meter to follow the course of acid-base titrations. From the resulting titration curves, you will determine the More information University of Wisconsin Chemistry 524 Spectroscopic Applications (GFAA, ICP, UV/Vis, Fluorescence) For this laboratory exercise, you will explore a variety of spectroscopic methods used in an analytical More information Laboratory 5: Properties of Enzymes Technical Objectives 1. Accurately measure and transfer solutions with pipettes 2. Use a Spectrophotometer to study enzyme action. 3. Properly graph a set of data. Knowledge More information Task Card #2 SMART Board: Notebook Objectives: Participants will learn how to utilize the SMART Notebook. Table of Contents: Launching The SMART Notebook Page 1 Entering Text Page 1 Top Toolbar Page 2 More information EXCEL Intermediate Tutorial Summary of important mathematical operations and formulas (from first tutorial): Operation Key Addition + Subtraction - Multiplication * Division / Exponential ^ To enter a More information Colorimetric Determination of Iron in Vitamin Tablets Big Picture Conceptual Approach Vitamin Tablet How much Fe? ph = 3.5 Vitamin Tablet How much Fe? Too difficult to eyeball so will have the colorimeter More information How to make a line graph using Excel 2007 Format your data sheet Make sure you have a title and each column of data has a title. If you are entering data by hand, use time or the independent variable in More information EFFECT OF SALT ON CELL MEMBRANES LAB CELL 2 INTRODUCTION A eukaryotic cell, a cell with a nucleus, not only has a plasma membrane as its external boundary, but it also has a variety of membranes that divide More information KI6501 Data Manager Software User Manual CONTENTS 1. Installation of USB Virtual COM Port driver software... 2 2. Installation of KI6501 Manager Software... 2 3. Connecting KI6501 to PC (Personal Computer) More information Interactive Excel Spreadsheets: Constructing Visualization Tools to Enhance Your Learner-centered Math and Science Classroom Scott A. Sinex Department of Physical Sciences and Engineering Prince George More information EXCEL Tutorial: How to use EXCEL for Graphs and Calculations. Excel is powerful tool and can make your life easier if you are proficient in using it. You will need to use Excel to complete most of your More information GENERAL SCIENCE LABORATORY 1110L Lab Experiment 6: Ohm s Law OBJECTIVES: To verify Ohm s law, the mathematical relationship among current, voltage or potential difference, and resistance, in a simple circuit. More information V-1.1 PART V Presentations and PowerPoint V-1.2 Computer Fundamentals V-1.3 LESSON 1 Creating a Presentation After completing this lesson, you will be able to: Start Microsoft PowerPoint. Explore the PowerPoint More information Table of Contents 1. Overview..... 3 1.1 Materials Required. 3 1.2 System Requirements. 3 1.3 User Mode 3 2. Installation Instructions.. 4 2.1 Installing the On Call Diabetes Management Software. 4 2.2 More information Enzyme Action: Testing Catalase Activity DataQuest 12 Many organisms can decompose hydrogen peroxide (H 2 O 2) enzymatically. Enzymes are globular proteins, responsible for most of the chemical activities More information [Type here] Using Excel for your assignments This document covers the basics of using Excel to perform simple data analysis and represent that data visually. Excel is a very powerful data analysis tool. More information Osmosis Computer 5 In order to survive, all organisms need to move molecules in and out of their cells. Molecules such as gases (e.g., O 2, CO 2), water, food, and wastes pass across the cell membrane. More information AEROBIC RESPIRATION LAB DO 2.CALC From Biology with Calculators, Vernier Software & Technology, 2000. INTRODUCTION Aerobic cellular respiration is the process of converting the chemical energy of organic More information Creating Charts in Microsoft Excel A supplement to Chapter 5 of Quantitative Approaches in Business Studies Components of a Chart 1 Chart types 2 Data tables 4 The Chart Wizard 5 Column Charts 7 Line charts More information 1 Lab 2 Biochemistry Learning Objectives The lab has the following learning objectives. Investigate the role of double bonding in fatty acids, through models. Developing a calibration curve for a Benedict More information Spreadsheets and Laboratory Data Analysis: Excel 2003 Version (Excel 2007 is only slightly different) Spreadsheets are computer programs that allow the user to enter and manipulate numbers. They are capable More information Flame Tests & Electron Configuration INTRODUCTION Many elements produce colors in the flame when heated. The origin of this phenomenon lies in the arrangement, or configuration of the electrons in the More information ACID-BASE TITRATION LAB PH 2.PALM INTRODUCTION Acids and bases represent a major class of chemical substances. We encounter them every day as we eat, clean our homes and ourselves, and perform many other More information Prism 6 Step-by-Step Example Linear Standard Curves Interpolating from a standard curve is a common way of quantifying the concentration of a sample. Step 1 is to construct a standard curve that defines More information Working with Tables in Microsoft Word The purpose of this document is to lead you through the steps of creating, editing and deleting tables and parts of tables. This document follows a tutorial format More information Spectrophotometry Practical Lesson on Medical Chemistry and Biochemistry General Medicine Jiřina Crkovská (translated by Jan Pláteník) 2010/2011 1 Spectrophotometry is one of the most widely used instrumental More information Measuring Protein Concentration through Absorption Spectrophotometry In this lab exercise you will learn how to homogenize a tissue to extract the protein, and then how to use a protein assay reagent to More information Pivot Tables & Pivot Charts Pivot tables... 2 Creating pivot table using the wizard...2 The pivot table toolbar...5 Analysing data in a pivot table...5 Pivot Charts... 6 Creating a pivot chart using the More information Titration of a Diprotic Acid: Identifying an Unknown Computer 25 A diprotic acid is an acid that yields two H + ions per acid molecule. Examples of diprotic acids are sulfuric acid, H 2 SO 4, and carbonic More information This activity will show you how to draw graphs of algebraic functions in Excel. Open a new Excel workbook. This is Excel in Office 2007. You may not have used this version before but it is very much the More information Microsoft Excel 2013: Charts June 2014 Description We will focus on Excel features for graphs and charts. We will discuss multiple axes, formatting data, choosing chart type, adding notes and images, and More information Excel -- Creating Charts The saying goes, A picture is worth a thousand words, and so true. Professional looking charts give visual enhancement to your statistics, fiscal reports or presentation. Excel More information Names: LabQuest Enzyme Action: Testing Catalase Activity 50 Points 6A Many organisms can decompose hydrogen peroxide (H 2 O 2) enzymatically. Enzymes are globular proteins, responsible for most of the More information SA-9600 Surface Area Software Manual Version 4.0 Introduction The operation and data Presentation of the SA-9600 Surface Area analyzer is performed using a Microsoft Windows based software package. The More information Make Voice Calls and Share Documents using Skype* Intel Easy Steps 1 2012 Intel Corporation Using Skype for making Voice Calls and Sharing Documents In the previous activity Using Skype to Communicate More information Dealing with Data in Excel 2010 Excel provides the ability to do computations and graphing of data. Here we provide the basics and some advanced capabilities available in Excel that are useful for dealing More information VIRGINIA TECH Inking in MS Office 2013 Getting Started Guide Instructional Technology Team, College of Engineering Last Updated: Fall 2013 Email tabletteam@vt.edu if you need additional assistance after More information USER MANUAL Detcon Log File Viewer DETCON, Inc. 4055 Technology Forest Blvd., The Woodlands, Texas 77381 Ph.281.367.4100 / Fax 281.298.2868 www.detcon.com January 29, 2013 Document #4482 Revision 1.00 More information Contents 1. Introduction 1. Starting Publisher 2. Create a Poster Template 5. Aligning your images and text 7. Apply a background 12. Add text to your poster 14. Add pictures to your poster 17. Add graphs More information ENZYME ACTION: TESTING CATALASE ACTIVITY LAB ENZ 1.CALC From Biology with Calculators, Vernier Software & Technology, 2000 INTRODUCTION Many organisms can decompose hydrogen peroxide (H 2 O 2) enzymatically. More information Building your own Spectroscope 0-0.341-0.445-0.606-0.872-1.36 Lyman Balmer Paschen n=4 n=8 n=7 n=6 n=5 n=4 ENERGY/10-19 J -2.42-5.45 E 5 2 E 4 2 E 3 2 E E 5 3 4 3 n=3 n=2 (Many other transitions beyond More information RuleBender 1.1.415 Tutorial Installing and Launching RuleBender Requirements OSX Getting Started Linux Getting Started Windows Getting Started Using the Editor The Main Window Creating and Opening Files More information This is an example report of an investigation performed in General Chemistry lab. Pay attention to format and content, not on the results or the experiment itself. The report is best explored on screen More information Using Excel (Microsoft Office 2007 Version) for Graphical Analysis of Data Introduction In several upcoming labs, a primary goal will be to determine the mathematical relationship between two variable More information Instructions for Formatting APA Style Papers in Microsoft Word 2010 To begin a Microsoft Word 2010 project, click on the Start bar in the lower left corner of the screen. Select All Programs and then find More information 1.5 MONITOR Schools Accountancy Team INTRODUCTION The Monitor software allows an extract showing the current financial position taken from FMS at any time that the user requires. This extract can be saved More information S HIFT INTO NEUTRAL 15. Acid-Base Titration Shift into Neutral Student Instruction Sheet Challenge Discover the concentration of an unknown acid solution using acid-base titration. Equipment and Materials More information

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