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Acids and Bases *Disproportionation of Tetravalent and Pentavalent Plutonium Ions* *Buffers for pH and Metal Ion Control* Principles of Modern Chemistry **Cell Biology by the Numbers** Chemistry of Variable Charge Soils *Biochemical Calculations* **Superacids and Acidic Melts as Inorganic Chemical Reaction Media** *Effects of Acid Precipitation on Terrestrial Ecosystems* ph and alkalinity *Buffers for pH and Metal Ion Control* **Principles of Biology** **Nucleic Acid-metal Ion Interactions** **Acid-base Balance Chemistry 2e** *Carbonic Acid Compounds and Hydrogen Ion Activities in Blood and Salt Solutions* **Chelation of Quartz Activating Ions in Oleic Acid Flotation** *Reactions of Acids and Bases in Analytical Chemistry* *The Ionization Constants of the Second Hydrogen Ion of Dibasic Acids ...* **Chemical Equilibria in Analytical Chemistry** **American Dyestuff Reporter** **General Chemistry** **Edexcel A-level Year 2 Chemistry Student Guide: Topics 11-15** Ions in Solution (3) **Uric Acid** **The Complex Ions Formed by Thorium and Iron with Fluoride in Acid Solution** *Researches, Chemical and Philosophical; Chiefly Concerning Nitrous Oxide* **Annual Report of Ohio Conference on Water Purification** Determination of Free Acid in the Presence of Hydrolyzable Ions *Environmental Geochemistry* **Paper Trade Journal** **Modern Methods for the Separation of Rarer Metal Ions** **Bacteriology** **Engineering and Contracting** **The Effect of Varying Hydrogen-ion Concentration on the Growth of Wheat Seedlings in Culture Soils and Solutions** **Soil Acidity and Plant Growth** *How to Test for Chloride Ions in Iron Treatment Solutions Using Quantab Test Strips* *Newnes Engineering and Physical Science Pocket Book* Anatomy & Physiology **Water Quality**

This book is intended as a practical manual for chemists, biologists and others whose work requires the use of pH or metal-ion buffers. Much information on buffers is scattered throughout the literature and it has been our endeavour to select data and instructions likely to be helpful in the choice of suitable buffer substances and for the preparation of appropriate solutions. For details of pH measurement and the preparation of standard acid and alkali solutions the reader is referred to a companion volume, A. Albert and E. P. Serjeant's The Determination of Ionization Constants (1971). Although the aims of the book are essentially practical, it also deals in some detail with those theoretical aspects considered most helpful to an understanding of buffer applications. We have cast our net widely to include pH buffers for particular purposes and for measurements in non-aqueous and mixed solvent systems. In recent years there has been a significant expansion in the range of available buffers, particularly for biological studies, largely in conse quence of the development of many zwiUerionic buffers by Good et al. (1966). These are described in Chapter 3. This volume contains papers presented at a NATO Advanced Research Institute, sponsored by their Eco-Sciences Panel, on "The effects of acid precipitation on vegetation and soils," held at Toronto, Canada from May 22-26, 1978. The organizing expenses and greater part of the expenses of the speakers and chair~en were provided by N.A.T.O. The scientific programme was planned by T. C. Hutchinson together with an international planning committee of G. Abrahamsen (Norway), G. Likens (U.S.A.), F.E. Last (U.K.), C.O. Tamm (Sweden) and B. Ulrich (W. Germany). Many of the dimensions of the 'acid rain' problem are common to countries of northern Europe and North America. The developing awareness over the past ten years of the international nature of the acid rain phenomenon has lead to studies documenting damaging effects on susceptible freshwater bodies. Large areas of the Canadian Pre-Cambrian Shield, with its extension into the United States, and the granitic areas of southern Norwayand Sweden contain lakes which are in the process of acidification. The biological resources of these affected areas are of considerable national concern. However, while clearly damaging effects of acidification on freshwater systems have been well documented, the impact of acid precipitation on terrestrial systems has not been so well understood. Environmental Geochemistry: Site Characterization, Data Analysis and Case Histories, Second Edition, reviews the role of geochemistry in the environment and details state-of-the-art applications of these principles in the field, specifically in pollution and remediation situations. Chapters cover both philosophy and procedures, as well as applications, in an array of issues in environmental geochemistry including health problems related to environment pollution, waste disposal and data base management. This updated edition also includes illustrations of specific case histories of site characterization and remediation of brownfield sites. Covers numerous global case studies allowing readers to see principles in action Explores the environmental impacts on soils, water and air in terms of both inorganic and organic geochemistry Written by a well-respected author team, with over 100 years of experience combined Includes updated content on: urban geochemical mapping, chemical speciation, characterizing a brownsfield site and the relationship between heavy metal distributions and cancer mortality A Top 25 CHOICE 2016 Title, and recipient of the CHOICE Outstanding Academic Title (OAT) Award. How much energy is released in ATP hydrolysis? How many mRNAs are in a cell? How genetically similar are two random people? What is faster, transcription or translation?Cell Biology by the Numbers explores these questions and dozens of others provid Exam Board: Edexcel Level: A-level Subject: Chemistry First Teaching: September 2015 First Exam: June 2017 Reinforce students' understanding throughout their course with clear topic summaries and sample questions and answers to help your students target higher grades. Written by experienced examiner George Facer, our Student Guides are divided into two key sections, content guidance and sample questions and answers. Content guidance will: - Develop students' understanding of key concepts and terminology; this guide covers topics 11 - 15: equilibrium II; acid-base equilibria; energetics II; redox II; transition metals. - Consolidate students' knowledge with 'knowledge check questions' at the end of each topic and answers in the back of the book. Sample questions and answers will: - Build students' understanding of the different question types, so they can approach questions from topics 11 - 15 with confidence. - Enable students to target top grades with sample answers and commentary explaining exactly why marks have been awarded. The Principles of Biology sequence (BI 211, 212 and 213) introduces biology as a scientific discipline for students planning to major in biology and other science disciplines.

Laboratories and classroom activities introduce techniques used to study biological processes and provide opportunities for students to develop their ability to conduct research. This book provides a modern and easy-to-understand introduction to the chemical equilibria in solutions. It focuses on aqueous solutions, but also addresses non-aqueous solutions, covering acid–base, complex, precipitation and redox equilibria. The theory behind these and the resulting knowledge for experimental work build the foundations of analytical chemistry. They are also of essential importance for all solution reactions in environmental chemistry, biochemistry and geochemistry as well as pharmaceutics and medicine. Each chapter and section highlights the main aspects, providing examples in separate boxes. Questions and answers are included to facilitate understanding, while the numerous literature references allow students to easily expand their studies. "This CCI Note describes the procedure for using Chloride Quantab Test Strips to monitor chloride ion concentrations in treatment solutions. The first step in the procedure involves testing solutions of known chloride ion concentrations to get experience using the test strips and to confirm that the test strips are working properly. Then actual treatment solutions or other solutions of unknown chloride ion concentration can be tested. A laboratory and ventilation are not required for this procedure unless nitric acid is required to adjust the acidity of the solution. If nitric acid is to be used, then consult its Safety Data Sheet (SDS) for health and safety information prior to use"--Intro., p. 3. Modern Methods for the Separation of Rarer Metal Ions describes several separation methods of more than 50 elements. This book is divided into 19 chapters that include separation methods involving the actinide elements, rare earths, and many rarer elements of the main and transition groups of the periodic table. The introductory chapter discusses the principles of the separation techniques presented in this book. The remaining chapters explore the application of specific separation methods, such as ion exchange, chromatography, liquid-liquid extraction, distillation, and coprecipitation. The approach of each chapter is a presentation of separation principle of an element first followed by numerous examples of applications to the solution of practical problems encountered in separation chemistry. Chapters 2 and 3 examine the separations involving the actinides and rare earth elements using ion exchange and liquid-liquid extraction These are followed by chapters dealing with separations of other rarer elements, which have been arranged according to their position in the periodic table. These elements are: Li, Rb, Cs, Fr, Be, Ra, Ga, In, Tl, Ge, Ag, Au, Ti, Zr, Hf, V, Nb, Ta, Mo, W, Tc, Re and the platinum metals. This book will be of great use to analytical chemists. This volume is of great importance to humans and other living organisms. The study of water quality draws information from a variety of disciplines including chemistry, biology, mathematics, physics, engineering, and resource management. University training in water quality is often limited to specialized courses in engineering, ecology, and fisheries curricula. This book also offers a basic understanding of water quality to professionals who are not formally trained in the subject. The revised third edition updates and expands the discussion, and incorporates additional figures and illustrative problems. Improvements include a new chapter on basic chemistry, a more comprehensive chapter on hydrology, and an updated chapter on regulations and standards. Because it employs only first-year college-level chemistry and very basic physics, the book is well-suited as the foundation for a general introductory course in water quality. It is equally useful as a guide for self-study and an in-depth resource for general readers. Weak acids and based; Amino acids and peptides; Biochemical energetics; Enzyme kinetics; Spectrophotometry; Isotopes in biochemistry; Miscellaneous calculations. Acids and bases are ubiquitous in chemistry. Our understanding of them, however, is dominated by their behaviour in water. Transfer to non-aqueous solvents leads to profound changes in acid-base strengths and to the rates and equilibria of many processes: for example, synthetic reactions involving acids, bases and nucleophiles; isolation of pharmaceutical actives through salt formation; formation of zwitter- ions in amino acids; and chromatographic separation of substrates. This book seeks to enhance our understanding of acids and bases by reviewing and analysing their behaviour in non-aqueous solvents. The behaviour is related where possible to that in water, but correlations and contrasts between solvents are also presented. Fundamental background material is provided in the initial chapters: quantitative aspects of acid-base equilibria, including definitions and relationships between solution pH and species distribution; the influence of molecular structure on acid strengths; and acidity in aqueous solution. Solvent properties are reviewed, along with the magnitude of the interaction energies of solvent molecules with (especially) ions; the ability of solvents to participate in hydrogen bonding and to accept or donate electron pairs is seen to be crucial. Experimental methods for determining dissociation constants are described in detail. In the remaining chapters, dissociation constants of a wide range of acids in three distinct classes of solvents are discussed: protic solvents, such as alcohols, which are strong hydrogen-bond donors; basic, polar aprotic solvents, such as dimethylformamide; and low-basicity and low polarity solvents, such as acetonitrile and tetrahydrofuran. Dissociation constants of individual acids vary over more than 20 orders of magnitude among the solvents, and there is a strong differentiation between the response of neutral and charged acids to solvent change. Ion-pairing and hydrogen-bonding equilibria, such as between phenol and phenoxide ions, play an increasingly important role as the solvent polarity decreases, and their influence on acid-base equilibria and salt formation is described. The quest to understand how nucleic acids function at the most fundamental level requires a detailed understanding of nucleic acid-metal ion interactions, as RNA and DNA are polyanions, their structures depend strongly on their association with metal ions. While scientists have appreciated the intimate connection between metal ions and nucleic acid function for decades, the noncovalent, dynamic nature of these interactions makes their accurate, quantitative description a challenge. Over the past few years, the simultaneous development of solution-state spectroscopic techniques and achievement of high resolution X-ray crystal structures has provided tremendous insight into nucleic acid-metal ion interactions. This insight includes direct evidence for the importance of such interactions in determining nucleic acid structure over orders of magnitude in scale, from the folding pathways of large RNAs to the subtle modulation of DNA groove width. Nucleic Acid-Metal Ion Interactions provides a comprehensive review of the experimental studies that define our current understanding of the subject, with a particular emphasis on biophysical studies. The book is not merely a current review of the literature, however, as the authors also present original material and fresh perspectives. The topics covered range from crystallographic studies of transition metal coordination by single nucleotides, to the application of polyelectrolyte theory in describing the delocalized counterions that surround nucleic acids in solution. Separate chapters describe how nucleic acid-metal interactions modulate both the kinetics and thermodynamics of RNA folding, play important roles in RNA catalysis, and how these interactions are even informing the design of new therapeutics. The book is sufficiently detailed to serve as a reference for researchers active in nucleic acids biophysics or molecular biology. Additionally, chapter authors have supplied sufficient introductory and background material to make this book an accessible first resource for students and researchers who are just beginning to explore this dynamic field. Soil Acidity and Plant Growth emerged from concerns over increasing acidification of soils under improved pastures over wide areas of southern Australia. While the

book has its origin in the problems of acidification of Australian soils under pastures, the authors examine soil acidity within a much broader framework, making their views relevant to all agricultural and natural ecosystems on acid soils. The book's first two chapters discuss the chemistry of soil acidity and the ecological processes leading to it. This is followed by separate chapters on biological responses to soil acidity, covering mineralization of soil nitrogen, incidence of plant diseases, plant mycorrhizal associations, symbiotic nitrogen fixation in legumes, and genetic variability in plant response to toxicities. The remaining chapters focus on the correction of soil acidity problems by liming. These include studies on the rates of application and effectiveness of liming materials; and the development and use of computer modelling procedures to help researchers identify the effects and interactions of soil pH on component processes and to provide assistance to farmers in the management of long-term subterranean clover pastures. "Davy discovered the anaesthetic properties of nitrous oxide and suggested its use during surgical operations ..."--Garrison-Morton. This book is intended as a practical manual for chemists, biologists and others whose work requires the use of pH or metal-ion buffers. Much information on buffers is scattered throughout the literature and it has been our endeavour to select data and instructions likely to be helpful in the choice of suitable buffer substances and for the preparation of appropriate solutions. For details of pH measurement and the preparation of standard acid and alkali solutions the reader is referred to a companion volume, A. Albert and E. P. Serjeant's The Determination of Ionization Constants (1971). Although the aims of the book are essentially practical, it also deals in some detail with those theoretical aspects considered most helpful to an understanding of buffer applications. We have cast our net widely to include pH buffers for particular purposes and for measurements in non-aqueous and mixed solvent systems. In recent years there has been a significant expansion in the range of available buffers, particularly for biological studies, largely in conse quence of the development of many zwiUerionic buffers by Good et al. (1966). These are described in Chapter 3. Includes proceedings of American Association of Textile Chemists and Colorists. Newnes Engineering and Physical Science Pocket Book is an easy reference of engineering formulas, definitions, and general information. Part One deals with the definitions and formulas used in general engineering science, such as those concerning SI units, density, scalar and vector quantities, and standard quantity symbols and their units. Part Two pertains to electrical engineering science and includes basic d.c. circuit theory, d.c. circuit analysis, electromagnetism, and electrical measuring instruments. Part Three involves mechanical engineering and physical science. This part covers formulas on speed, velocity, acceleration, force, as well as definitions and discussions on waves, interference, diffraction, the effect of forces on materials, hardness, and impact tests. Part Four focuses on chemistry — atoms, molecules, compounds and mixtures. This part examines the laws of chemical combination, relative atomic masses, molecular masses, the mole concept, and chemical bonding in element or compounds. This part also discusses organic chemistry (carbon based except oxides, metallic carbonates, metallic hydrogen carbonate, metallic carbonyls) and inorganic chemistry (non-carbon elements). This book is intended as a reference for students, technicians, scientists, and engineers in their studies or work in electrical engineering, mechanical engineering, chemistry, and general engineering science. This text explains the difference between the variable charge soils of tropical and subtropical regions, and the constant charge soils of temperate regions. It focuses on the chemical properties of the variable charge soils - properties which have an important bearing on soil management practices. Plutonium literature does not satisfactorily include the four common oxidation states of plutonium in discussions of the stoichiometry of the disproportionation of the tetravalent and pentavalent states of this element. A theoretical study of possible consequences of including all common oxidation states of plutonium in the disproportionation reactions was made. The study, based upon available potential and free energy data, indicates that the disproportionation equations can be written with all four species included. The potential behavior of disproportionated plutonium solutions can be predicted with the aid of these new equations. The equations also predict that the hydrogen ion dependence of plutonium disproportionation reactions should not be exactly fourth power at all acidities.