Dinesh Chemistry Practical Manual

The Book Provides An Exhaustive List Of Organic Compounds, Methods Of Its Identification, Its Derivatives Every Information Incorporated In Consolidated Form. It Also Describes Different Methods Of Isolation Of Some Important Class Of Compounds. Exercises Included In The Book Not Only Describe Different Methods/Techniques Of Preparation But Also Explain The Theoretical Background Of These Reactions. The Subject Matter Is Based On The New Model Curriculum Recommended By The University Grants Commission For All Indian Universities. Basically The Book Has Been Written As A Textbook With An Intention To Serve The Students At The Graduate And Postgraduate Level. This Book Promotes Self Reliance Since It Is In Itself Complete Requiring No Reference To Other Texts 3e38787075

Highly Useful for Various Engineering and Medical Competitive Examinations 3e38787075

ICSE-Lab Manual Chemistry-TB-09 3e38787075

E. More refined and recently discovered super-specific topics are being introduced instead of old ones while modifying the course curriculum. Keeping all this in mind, and utilizing my long experience as a teacher in a technical college under a technical university, I have ventured to write this book titled, Engineering Chemistry Laboratory Manual. These are supplemented with theoretical explanations followed by procedure description, tabulation, calculation, sample calculation, and finally a series of possible viva-voce questions and their answers relating to that experiment. In the new course curriculum, more noteworthy accentuation is laid on the basic science subjects and, on the need, to develop in-depth knowledge about the fundamentals of any particular area of academic interest. It will also serve as a textbook in Chemistry practical examinations for any student in the laboratory. In this book, all experiments are explained as per the JNTU syllabus for the first-year students of B. I sincerely hope that this book will receive full appreciation from both students and teachers. /B. students to do well in their viva voce while completing their experiments cum examinations. Over the most recent couple of years, the importance of undergraduate technical education has grown amid a huge industrial revolution in our country. This book will certainly help all B. Tech. Tech 3e38787075

A. Thermochemistry 1. To study the variation of cell potential in Zn|Zn2+||Cu2+|Cu, with change in concentration of electrolytes (CuSO4 or ZnSO4) at room temperature Viva-Voce E. To prepare 250 ml of M/10 solution of oxalic acid, 2. 6. 3. Chromatography 1. To investigate presence of carbohydrates, fats and proteins in food stuffs Viva-Voce J. 7. Preparation of iodoform from ethyl alcohol or acetone, 2. To separate the coloured components (pigment) present in the given extract of leaves and flowers by ascending paper chromatography and find their Rf values, 2. To extract essential oils present in saunf (aniseed), ajwain (corum), illaichi (cardomom). To study the quantity of caseine present in different samples of milk. Preparation of double salt of ferrous ammonium sulphate (Mohr's salt) from ferrous sulphate and ammonium sulphate, 2. To compare the effectiveness of different common oils (Castor oil, cotton seed oil, coconut oil, kerosene oil, mustard oil) in forming emulsions. To separate the coloured components present in the mixture of red and blue inks by ascending paper chromatography and find their Rf values, 3. To study simple reactions of fats, 3. To determine enthalpy change during the interaction between acetone and chloroform Viva-Voce D. To study the effect of concentration on the rate of reaction between sodium thiosulphate and hydrochloric acid, 2. Determine the enthalpy of dis solution of copper sulphate (CuSO4. To study the presence of oxalate ions in guava fruit at different stages of ripening. To prepare colloidal solution of ferric hydroxide [Fe(OH)3], 6. To study simple reactions of proteins, 4. To detect the presence of adulteration in fat, oil and butter, 9. Surface Chemistry 1. To study the effect of potassium bisulphite as food preservative at various concentrations. To prepare a colloidal solution of egg albumin 3. To study the rate of reaction of iodide ions with hydrogen peroxide at different concentrations of iodide ions, 4. To prepare a pure sample of dibenzalacetone, 5. To prepare colloidal solution (sol) of starch, 2. 5H2O) in water at Room temperature, 2. Electrochemistry 1. To study and compare the rate of fermentation of the following materials—wheat flour, gram flour, potato juice and carrot juice. Volumetric Analysis 1. Preparation of soyabean milk and its comparison with natural milk with respect to curd formation, effect of temperature etc. Prepare M/20 solution of Mohr's salt, using this solution determine the molarity and strength of potassium permanganate solution Viva-Voce K. To study the effect of temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid, 3. Tests for the Functional Groups Present in Organic Compounds Viva-Voce I. 8. Prepare M/20 solution of oxalic acid, with its help find out the molarity and strength of the given solution of potassium permanganate, 4. To purify a freshly prepared sol by dialysis, 8. Preparation of Inorganic Compounds 1. To prepare colloidal solution of arsenious sulphide [As2S3], 7. To study the rate of reaction between potassium iodate (KIO3) and sodium sulphite (Na2SO3) using starch solution as indicatorl Viva-Voce C. To study simple reactions of carbohydrate, 2. To prepare colloidal solution of aluminium hydroxide [Al(OH)3], 5. To prepare a pure sample of p-nitro acetanilide Viva-Voce H. 5. Study of Carbohydrates, Fats and Proteins 1. To investigate the presence of NO2– in brinjal. To prepare 250 ml of M/10 solution of ferrous ammonium sulphate, 3. Qualitative Analysis Viva-Voce INVESTIGATORY PROJECTS 1. To study the digestion of starch by salivary amylase and the effect of pH and temperature on it. Chemical Kinetics 1. Preparation of acetanilide in laboratory, 3. To prepare a pure sample of potash alum

(fitkari), 3. Preparation of b-Naphthol aniline dye, 4. Preparation of Organic Compounds 1. To separate Co2+ and Ni2+ ions present in the given mixture by using ascending paper chromatography and determine their Rf values Viva-Voce F. To prepare colloidal solution of gum, 4. To determine the enthalpy of neutralization of the reaction between HCl and NaOH, 3. Preparation of crystals of potassium ferric oxalate or pottasium trioxlato ferrate (III) Viva-Voce G. 4. 2. Viva-Voce B 3e38787075

Masterly’s series LAB MANUAL OF ANALYTICAL CHEMISTRY For B. D First Year As Per GTU & PCI SYLLABUS. Pharm and Pharm 3e38787075

This Book Will Help The Students In Acquiring Correct Skills In Practicals And Various Techniques Of All Laboratory Experiments. * Li\u003eIn Quantitative Analysis (Inorganic And Organic), Various Tests Have Been Given In A Systematic Way. * An Appendix Each For The Solubility'S Of Various Salts, Atomic Weights, Preparation Of Various Reagents, Indicator Papers And The First Aid To Be Administered In Case Of Accidents Is Given. Selection Of Projects Is Carefully Made Which Can Be Easily Performed In School Laboratory. * A Fairly Large Number Of Investigatory Projects Covering Various Topics Are Given. * Viva-Voice Questions Have Been Included In Each Chapter. This Book Has Been Especially Written For Class Xii Students Under 10+2 Pattern Of Education According To The Syllabi Prescribed By The Cbse And Other States Boards. The Syllabi Prescribed For Class Xii Students Under 10+2 Pattern Along With Distribution Of Marks Is Also Given. * Simple Language And Lucid Style. This Describes The Laboratory Apparatus And Instructions And Precautions For Working In The Laboratory. * An Appendix Describing Some Typical Chemical Exhibits Is Also Given. These Experiments Will Cultivate Interest Among The Students For Learning Chemistry. * Adequate Number Of Illustrations To Explain And To Clarify The Use Of Various Apparatus Used In The Laboratory. * Theoretical Aspects Of Each Equipment Have Been Discussed Along With Experiments. * In Volumetric Analysis, Both The Normality And Molarity Concepts Are Made Clear. * An Appendix Describing Various Chemical Hobbies Is Given Which Will Be Extremely Helpful To The Students For The Development Of Chemical Hobbies, Understanding The Basic Principles Involved And The Chemistry Of Various Hobbies. Salient Features * An Introduction To The Book Is Given. This Will Help The Students To Participate In The Science Fares Organized By Various Agencies. Specimen Recordings Of Experiments Are Given To Help The Students To Record On Their Notebooks 3e38787075

Lab Manuals 3e38787075

The authors hope that this manual would prove to be useful in laboratories where soil, water and air are routinely tested. Spread in 72 experiments the analyses of soil, water and air have been described in a simple manner so that most of these experiments can be conducted even by the beginners in this subject. The principles involved, preparation of the reagents and the procedures are described for each experimental method. The present book is meant for the students who opt for a course in Environmental Chemistry with laboratory work as a component of the course 3e38787075

A Textbook Of Experiments And Calculations In Engineering Chemistry. Engineering Chemistry, Comprihensive Engineering Chemistry, Engineering Chemistry Experiments and Calculations, Calculations in Engeineering chemistry, chemistry experiments for engineering students, chemistry calculations experiments in engineering chemistry, enggchemistry experiments, engineering chemistry lab experiments, engineering chemistry projects, recent chemistry projects for engg, experiments for engg chemistry lab, engineering chemistry, projects in engg lab 3e38787075

A proper balance between the theoretical and practical aspects is considered. Designed for undergraduate students to use with their laboratory work in engineering chemistry, this book provides an easy and systematic approach to applied chemistry 3e38787075

Lab Manual 3e38787075

Sc. FOR B. I , II & III YEAR STUDENTS 3e38787075

In this edition some practical have been revised and expanded considerably. To meet the specific demands of a segment of readers, a number of new experiments are incorporated in various sections. A new practical on Bomb calorimeter has been added 3e38787075

S. This book is designed both for undergraduate and postgraduate level students with its enhanced and comprehensive presentation. A. , 2006), and Heterocyclic Chemistry (4th edn. About the Author: Dr. Also included are 20 estimations, 75 preparations and isolation experiments and approximately 135 in-text questions related to the experiments. A. , Canada, followed by a Research Associateship at the Mellon Institute of Science, Carnegie-Mellon University, Pittsburgh Pa. , and Ph. The approximation of modern spectroscopic techniques to structure determination have been discussed in the last Chapter. He is the author of six books on chemistry including this work-A Textbook of Organic Chemistry (5th ed. S. This is an indispensable book for organic chemistry practicals. A. He was a postdoctoral fellow at the National Research Council (N. Dr.

S. , 2007), Organic Chemistry-Problems and Solutions (2nd edn. Raj K. Bansal has published a number of research papers in various foreign and Indian scientific journals. from Calgary University, Calgary, Alberta, Canada. An obvious change of this edition constitutes the splitting of Chapter 7 into two separate Chapters. Dr. S. from the University of California, Davis, Calif, U. Tables on derivatives of organic compounds have been expended. , U. S. Chapter 2 has been completely rewritten. R. Bansal received his M. C.) of Canada in Halifax, N. D. One of his books, Synthetic Approaches in Organic Chemistry has been reprinted by Jones and Bartlett Publishers, Sudbury, Massachusetts, U. About the Book: The manual has been thoroughly revised, several new experiments and tests have been added while some redundant material has been deleted. Bansal was a former Professor, Department of Chemistry, Indian Institute of Technology, Delhi, Hauz Khas, New Delhi. , 2005) 3e38787075

by Lassaigne’s test INVESTIGATORY PROJECTS (A) Checking of Bacterial Contamination in Water 1. To bend the glass rod at an angle, 3. To determine the melting point of the given unknown organic compound and its identification (simple laboratory technique), 2. To bore a cork and fit a glass tube into it. To study the pH change by common ion (CH3COO– ion) in case of weak acid (CH3COOH), 5. To cut a glass tube or glass rod, 2. To test the hardness of different water samples. To purify water by boiling, 3. (C) Water Analysis 1. To study the rate of evaporation of different liquids (H) Effect of Acids and Bases on Tensile Strength of Fibres 1. To study the shift in equilibrium between [Co(H2O)6]2+ and Cl– ions by changing the concentrations of either of the ions, (E) Quantitative Analysis 1. To compare the tensile strength of natural fibres and synthetic fibres, 2. (D) Foaming Capacity of Various Soaps 1. To study the acidity of different samples of tea leaves (tea) by using pH paper (F) Analysis of Fruits and Vegetable Juices 1. (B) Characterisation and Purification of Chemical Substances- 1. To analyse the fruit and vegetable juices for the constituent present in them (G) Rate of Evaporation 1. To study the pH change in the titration of strong base Vs. strong acid by using universal indicator paper, 4. To determine the boiling point of a given liquid when available in small quantity (simple laboratory method), 3. Analysis of Cations (G) Detection of Elements in Organic Compounds 1. To determine the pH value of vegetable juices, fruit juices, tap water and washing soda by using universal pH paper, 2. To determine and compare the pH values of solutions of strong acid (HCI) and weak acid (CH3COOH) of same concentration, 3. (A) Basic Laboratory Techniques – 1. To prepare the pure crystals of copper sulphate from the given crude sample, 5. To determine the strength of a given solution of hydrochloric acid by titrating it against a standard N/10 or M/20 sodium carbonate solution, (F) Qualitative Analysis 1. To purify water by ozone treatment method. (C) Measurement of pH Values 1. An Excellent Book in Accordance with the latest syllabus for Class-11 Prescribed by CBSE/NCERT and Adopted by Various State Education Boards. To study the shift in equilibrium between ferric ions and thiocyanate ions by changing the concentrations of either of the ions, 2. To prepare pure crystals of benzoic acid from a given impure sample. Analysis of Anions, 2. To compare the foaming capacity of different washing soaps, 2. To detect the presence of nitrogen, sulphur and halogens in the given organic compound sample number. To draw a glass jet from a glass tube, 4. To

purify water by distillation method, 4. To prepare M/10 oxalic acid solution by direct weighing method, 2. To purify water by GAC method, 6. To determine the strength of given solution of sodium hydroxide by titrating it against N/10 or M/20 solution of oxalic acid, 4. Log & Antilog Table. To determine the change in pH value of weak base (NH4OH) in presence of a common ion (NH4+), (D) Chemical Equilibrium 1. To purify water from suspended impurities by using sedimentation, 2. To purify water by bleach treatment, 7. To study the effect of acids and bases on tensile strength of different fibres. To purify water by oxidising agent, 8. To detect the presence of nitrogen, sulphur and halogens in a given organic compound by Lassaigne's test, 2. 24H2O] from the given impure sample, 4. 5. To check the bacterial contamination in drinking water by testing sulphide ions (B) Methods of Water Purification 1. Al2(SO4)3. To prepare M/10 solution of sodium carbonate by direct weighing method, 3. To prepare crystals of pure potash alum [K2SO4. To purify water by reverse osmosis technique. To study the effect of addition of sodium carbonate on foaming capacity of washing soap (E) Tea Analysis 1 3e38787075

Life is impossible without chemistry. The practical book providing simple and easy approach on the subject matter to Engineering students. The present book entitled "ENGINEERING CHEMISTRY LABORATORY MANUAL" is very useful to Engineering students of various Institutions. Engineering chemistry has a special role to play in the curriculum of under graduate students of all branches of Engineering 3e38787075

reference book 3e38787075

This manual is largely structured around the standard experiments of physical chemistry. Physical Chemistry deals with the relations between the physical properties of substances and their composition. I will be happier to take all comments and incorporate them in the further editions. Detailed information on instrumentation, kinetics, experimental methods and data analysis has been covered. I have attempted to assemble the list of experiments from my experience and also have drawn upon the experience of the students who have undergone these laboratory courses and felt the inadequacy of the existing syllabus. The present book is intended to serve as a practical manual for undergraduate and post graduate students. I am aware that I have not yet exhausted all the experiments that they wanted to place in this book but I had to make a selection keeping the size in consideration 3e38787075

Provides a simple and methodical description of fundamental principles and concepts while simplifying the technical difficulties faced while performing experiments. The topics have been discussed in sufficient detail to provide knowledge of experimental chemistry. The primary objective is to simplify lab procedures and practices for students 3e38787075

Practical Engineering Chemistry 3e38787075

A large number of Physical Chemistry, Environmental Chemistry, Nanoscience, Polymer Chemistry and Analytical Chemistry experiments have been covered using interdisciplinary and innovative methods. This book covers the latest syllabus of CBCS pattern of Delhi and other universities for both B. The contents include some fundamental chemical concepts, measurement of surface tension and viscosity, colorimetry, determination of order of a reaction, hetrogeneous equilibria, adsorption on solid surfaces, thermochemical measurements, conductometric and potentiometric measurements, pH metry, environmental parameter analysis, etc. Sc. So the teachers and students will have a choice to make depending on the availability of chemicals, apparatus, instruments, time, etc. This book will give them the opportunity to relate theory and practicals for a better understanding of the subject. Programme and Honours courses. Wherever possible, two or more methods are given 3e38787075

This book specifically fulfills all needs and makes the students competent 3e38787075

Tables for experimental observations are provided. In each chapter, complete theory is introduced before the start of the experiment. Each experiment has been designed in a format that is adopted by the students in writing their notebooks. Designed to meet the needs of graduate and postgraduate students 3e38787075

The authors have drawn on their own and their students' experience to compile the experiments. Presents a physical chemistry laboratory programme. Some experiments have been purposely included so that they can be covered at demonstration level and can be given as exercises at the postgraduate level 3e38787075

This book has been methodically prepared, in which each chapter begins with a theoretical background under the caption of ‘Introductory Notes’, and ends with relevant appendix 3e38787075

To prepare M/10 solution of sodium carbonate by direct weighing method 3. Analysis of Fruits and Vegetable Juices 1. To purify water by oxidising agent 8. To prepare the pure crystals of copper sulphate from the given crude sample 5. To purify water by boiling 3. To prepare crystals of pure potash alum [K2SO4. To analysis the fruit and vegetable juices for the constituent present in them Viva-Voce 7. Quantitative Analysis 1. Effect of Acids and Bases on Tensile Strength of Fibres 1. 24H2O] from the given impure sample 4. To test the hardness of different

water samples Viva-Voce 4. Characterisation and Purification of Chemical Substances 1. 1. To purify water by ozone treatment method Viva-Voce 3. To study the pH change in the titration of strong base Vs. Checking of Bacterial Contamination in Water 1. Chemical Equilibrium 1 To study the shift in equilibrium between ferric ions and thiocyanate ions by changing the concentrations of either of the ions 2. Measurement of pH Values 1. To determine the strength of given solution of sodium hydroxide by titrating it against N/10 or M/20 solution of oxalic acid 4. To study the effect of acids and bases on tensile strength of different fibres Viva-Voce. To purify water by bleach treatment 7. strong acid by using universal indicator paper 4. Methods of Water Purification 1. Qualitative Analysis Analysis of Anions Analysis of Cations Viva-Voce 7. To determine and compare the pH values of solutions of strong acid (HCI) and weak acid (CH3COOH) of same concentration 3. Basic Laboratory Techniques 1. To detect the presence of nitrogen, sulphur and halogens in a given organic compound by Lassaigne's test 2. To bend the glass rod at an angle, 3. To purify water by reverse osmosis technique 5. To check the bacterial contamination in drinking water by testing sulphide ions Viva-Voce 2. Foaming Capacity of Various Soaps 1. Water Analysis 1. To determine the boiling point of a given liquid when available in small quantity (simple laboratory method) Viva-Voce 3. Detection of Elements in Organic Compounds 1. To study the acidity of different samples of tea leaves (tea) by using pH paper Viva-Voce 6. o purify water by distillation method 4. To purify water by GAC method 6. To draw a glass jet from a glass tube 4. To cut a glass tube or glass rod, 2. To purify water from suspended impurities by using sedimentation 2. Al2(SO4)3. To compare the foaming capacity of different washing soaps 2. To bore a cork and fit a glass tube into it Viva-Voce 2. Rate of Evaporation 1. To determine the pH value of vegetable juices, fruit juices, tap water and washing soda by using universal pH paper 2. To study the pH change by common ion (CH3COO– ion) in case of weak acid (CH3COOH) 5. To study the rate of evaporation of different liquids lViva-Voce 8. To compare the tensile strength of natural fibres and synthetic fibres 2. To determine the melting point of the given unknown organic compound and its identification (simple laboratory technique) Viva-Voce 2. To prepare pure crystals of benzoic acid from a given impure sample Viva-Voce 3. To study the shift in equilibrium between [Co(H2O)6]2+ and Cl– ions by changing the concentrations of either of the ions Viva-Voce 5. To study the effect of addition of sodium carbonate on foaming capacity of washing soap Viva-Voce 5. To detect the presence of nitrogen, sulphur and halogens in the given organic compound sample number. by Lassaigne's test Viva-Voce INVESTIGATORY PROJECTS 1. To prepare M/10 oxalic acid solution by direct weighing method 2. Tea Analysis 1. To determine the change in pH value of weak base (NH4OH) in presence of a common ion (NH4+) Viva-Voce 4. To determine the strength of a given solution of hydrochloric acid by titrating it against a standard N/10 or M/20 sodium carbonate solution Viva-Voce 6 3e38787075

A comprehensive theory has been introduced before the start of each experiment, and the observation tables with calculations are based on the actual experiments. Includes well designed and selected experiments on volumetric, gravimetric and spectrophotometric analysis, and an

ecofriendly approach of analyzing a mixture incorporates the spot tests and semi-micro analysis. The safety instructions usually not available in practical books but necessary for those working in a chemistry laboratory are also included. This book provides training to the students and also serves as a reference book for the teachers and industrial chemists. Some questions related to the experiments for viva-voce are provided 3e38787075