

# Chemistry Class Xi Practicals Chromatography

Comprehensive Organic Chemistry Experiments for the Laboratory Classroom  
 Practical High Performance Liquid Chromatography  
 Oswaal CBSE Question Bank Class 12 English Core, Physics, Chemistry & Biology (Set of 4 Books) Chapterwise and Topicwise Solved Papers For Board Exams 2025  
 Practical Liquid Chromatography  
 Oswaal CBSE Question Bank Class 12 Chemistry, Chapterwise and Topicwise Solved Papers For Board Exams 2025  
 Practical Aspects of modern high performance liquid chromatography  
 Oswaal CBSE Question Bank Class 12 English Core, Physics, Chemistry & Mathematics (Set of 4 Books) Chapterwise and Topicwise Solved Papers For Board Exams 2025  
 ISC Practical Chemistry Class XI  
 Practical/Laboratory Manual Chemistry Class XII based on NCERT guidelines by Dr. S. C. Rastogi, Er. Meera Goyal  
 Practical/Laboratory Manual Chemistry Class XI based on NCERT guidelines by Dr. S. C. Rastogi & Er. Meera Goyal  
 ISC Chemistry Book 1 for Class XI (2021 Edition)  
 Chemical Technology  
 Oswaal CBSE Sample Question Papers Class 11 Biology Book (For 2024 Exams ) | 2023-24  
 Applied Thin-Layer Chromatography  
 Instrumental Liquid Chromatography  
 Biology Lab Manual Class XI | As per the latest CBSE syllabus and other State Board following the curriculum of CBSE.  
 Conceptual Chemistry Class XI Vol. II  
 THIN LAYER CHROMATOGRAPHY (SET PRICE OF 34 BOOKS)  
 Food Processing Technology  
 Practical Biochemistry for Colleges  
 Cerebrovascular Bibliography  
 Practical Liquid Chromatography  
 Practical Gas Chromatography  
 Practical/Laboratory Manual Biology Class XI based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal  
 Environmental Chemistry  
 Advances in Chromatography  
 ISC Practical Chemistry Volume 1 XI  
 Oswaal CBSE & NCERT One for All Class 12 Chemistry (For 2024 Exam)  
 Forensic Applications of Gas Chromatography  
 Comprehensive Practical Chemistry XI  
 Chemistry Class XI - SBPD Publications  
 ISC Practical Chemistry Vol. I Class-XI  
 37 Years NEET Chapterwise & Topicwise Solved Papers Chemistry (2024-1998) | As Per NCERT Class 11 & 12 Include New Syllabus PYQs Question Bank For 2025 Exam  
 Experiments in Pharmaceutical Chemistry, Second Edition  
 Practical Guide to ICP-MS and Other Atomic Spectroscopy Techniques  
 Oswaal One for All Class 12 English, Physics, Chemistry & Mathematics (Set of 4 books) (For CBSE Board Exam 2024)  
 Oswaal CBSE Question Bank Class 11 Biology, Chapterwise and Topicwise Solved Papers For 2025 Exams  
 Practical High Performance Liquid Chromatography  
 Practical/Laboratory Manual Chemistry Class - XI  
 Practical High-performance Liquid Chromatography

Chemistry Class Xi Practicals Chromatography

Downloaded from [hl.uconnect.hi.u.edu](http://hl.uconnect.hi.u.edu) by guest

## MATTHEWS ELVIS

**Comprehensive Organic Chemistry Experiments for the Laboratory Classroom** S. Chand Publishing

This book presents a selection of tried and trusted laboratory experiments in the field of biochemistry. The experiments are described in detail and can be used directly or in a modified form. They are grouped according to a broad range of biochemical disciplines which allows those responsible for arranging practical classes to select experiments to complement any given biochemistry course. Suggestions are made for further work in more advanced classes. As well as the practical method the experiments are accompanied by background information, discussion of results, references for further study and illustrations.

**Practical High Performance Liquid Chromatography** Oswaal Books

Description of the product: ♦ Strictly as per the latest CBSE Syllabus dated: March 31, 2023 Cir. No. Acad-39/2023 & Acad45/2023. ♦ 100 % Updated for 2023-24 with Latest Rationalised NCERT Textbooks ♦ Concept Clarity with Concept wise Revision Notes, Mind Maps & Mnemonics ♦ 100% Exam Readiness with Previous Year's Questions & Board Marking Scheme Answers ♦ Valuable Exam Insights with 3000+ NCERT & Exemplar Questions ♦ Extensive Practice with Unit Wise Self-Assessment Questions & Practice Papers ♦ NEP Compliance with Competency based questions  
[Oswaal CBSE Question Bank Class 12 English Core, Physics, Chemistry & Biology \(Set of 4 Books\) Chapterwise and Topicwise Solved Papers For Board Exams 2025](#) Oswaal Books

ISC Practical Chemistry Class XI

*Practical Liquid Chromatography* Oswaal Books

For six decades, scientists and researchers have relied on the Advances in Chromatography series for the most up-to-date information on a wide range of developments in chromatographic methods and applications. The clear presentation of topics and vivid illustrations for which this series has become known make the material accessible and engaging to analytical, biochemical, organic, polymer, and pharmaceutical chemists at all levels of technical skill. Describes the thermodynamics and kinetics underlying hydrophobic interaction chromatography of proteins. Outlines use of a kinetic model in the predictive modeling of evaporation processes that eliminates the need to know the composition and identity of the chemical constituents in the sample. Explores building and employing QSRR models in cyclodextrin modified high-performance liquid chromatography (HPLC). Reviews chemometric methods commonly paired with comprehensive 2D separations and key instrumental and preprocessing considerations.

*Oswaal CBSE Question Bank Class 12 Chemistry, Chapterwise and Topicwise Solved Papers For Board Exams 2025* Oswaal Books and Learning Private Limited

Description of the product: •100% Updated Syllabus & Fully Solved Board Papers: we have got you covered with the latest and 100% updated curriculum. • Crisp Revision with Topic-wise Revision Notes & Smart Mind Maps. •Extensive Practice with 3000+ Questions & Board Marking Scheme Answers to give you 3000+ chances to become a champ. •Concept Clarity with 1000+ Concepts & 50+ Concept Videos for you to learn the cool way—with videos and mind-blowing concepts. •NEP 2020 Compliance with Competency-Based Questions for you to be on the cutting edge of the coolest educational trends.

**Practical Aspects of modern high performance liquid chromatography** Laxmi Publications

This book presents chemical analyses of the most pressing waste, pollution, and resource problems for the undergraduate or graduate student. Its distinctive holistic approach provides a solid introduction to theory as well as a practical laboratory manual detailing beginning and advanced experimental applications. It presents laboratory procedures at microscale conditions, for minimum

waste and maximum economy.

**Oswaal CBSE Question Bank Class 12 English Core, Physics, Chemistry & Mathematics (Set of 4 Books) Chapterwise and Topicwise Solved Papers For Board Exams 2025** CRC Press

Description of the product: ♦ Strictly as per the latest CBSE Syllabus dated: March 31, 2023 Cir. No. Acad-39/2023 & Acad45/2023. ♦ 100 % Updated for 2023-24 with Latest Rationalised NCERT Textbooks ♦ Concept Clarity with Concept wise Revision Notes, Mind Maps & Mnemonics ♦ 100% Exam Readiness with Previous Year's Questions & Board Marking Scheme Answers ♦ Valuable Exam Insights with 3000+ NCERT & Exemplar Questions ♦ Extensive Practice with Unit Wise Self-Assessment Questions & Practice Papers ♦ NEP Compliance with Competency based questions  
*ISC Practical Chemistry Class XI* John Wiley & Sons

Thin-layer chromatography (TLC) is a powerful, fast and inexpensive analytical method. It has proven its usefulness in pharmaceutical, food and environmental analysis. This new edition of the practical TLC guide features a completely revised chapter on documentation, now including the use of digital cameras. Selected new sorbents and instruments are also introduced. Why has the prior edition been successful? All steps of the analytical procedure are clearly explained, starting with the choice of a suitable TLC technique and ending with data evaluation and documentation. Special emphasis is put on the proper choice of materials for TLC. Properties and functions of various materials and the TLC equipment are described, covering e. g. precoated layers, solvents and developing chambers, including information on suppliers. Many practical hints for trouble shooting are given. All this is illustrated with numerous coloured figures. How to use TLC in compliance with GLP/GMP regulations is described in detail, including the required documentation. Therefore the reader can very easily compile his own standard operating procedures.

**Practical/Laboratory Manual Chemistry Class XII based on NCERT guidelines by Dr. S. C. Rastogi, Er. Meera Goyal** CRC Press

A book on Conceptual Chemistry

*Practical/Laboratory Manual Chemistry Class XI based on NCERT guidelines by Dr. S. C. Rastogi & Er. Meera Goyal* Springer Science & Business Media

Description of the product: • Fresh & Relevant with 2024 CBSE SQP- Fully Solved & Analysed • Score Boosting Insights with 500+Questions & 1000+ Concepts • Insider Tips & Techniques with On-Tips Notes, Mind Maps & Mnemonics • Exam Ready to Practice with 10 Highly Probable SQPs with Actual Board Answer-sheets

*ISC Chemistry Book 1 for Class XI (2021 Edition)* Elsevier

Gas chromatography continues to be one of the most widely used analytical techniques, since its applications today expand into fields such as biomarker research or metabolomics. This new practical textbook enables the reader to make full use of gas chromatography. Essential fundamentals and their implications for the practical work at the instrument are provided, as well as details on the instrumentation such as inlet systems, columns and detectors. Specialized techniques from all aspects of GC are introduced ranging from sample preparation, solvent-free injection techniques, and pyrolysis GC, to separation including fast GC and comprehensive GCxGC and finally detection, such as GC-MS and element-specific detection. Various fields of application such as enantiomer, food, flavor and fragrance analysis, physicochemical measurements, forensic toxicology, and clinical analysis are discussed as well as cutting-edge application in metabolomics is covered.

*Chemical Technology* SBPD Publications

This book gives a practical introduction to one of the more popular separation techniques. Readers will learn to perform separations and will develop the ability to make an educated guess as to what the conditions will be to separate a new mixture of compounds. The authors provide classes of compound and background theory that quickly develop the skills of the student learning thin layer

chromatography. Chapter coverage includes stationary phase, mobile phase, practical techniques, applications, recent developments, and advantages and disadvantages of thin layer chromatography. It also includes a bibliography of texts providing additional separations for further study. · Stationary Phase· Mobile Phase· Sample· Practical Techniques· Applications· Recent Developments· Advantages and Disadvantages of TLC· Self Assessment Questions and Responses · Units of Measurement

Oswaal CBSE Sample Question Papers Class 11 Biology Book (For 2024 Exams ) | 2023-24 Prabhat Prakashan

Written by an author with more than 40 years of teaching experience in the field, *Experiments in Pharmaceutical Chemistry, Second Edition* responds to a critical classroom need for material on directed laboratory investigations in biological and pharmaceutical chemistry. This new edition supplies 75 experiments, expanding the range of topics to 22 major areas of pharmaceutical chemistry. These include biochemical groups, botanical classes important to pharmacy, and major drug classifications: Carbohydrates Lipids Proteins Enzymes Inorganics Vitamins Steroids Plant Acids Flavonoids Alkaloids Tannins Resins Glycosides Gums Balsams Volatile Oils Analgesics Anesthetics Sulfa Drugs (Sulfonamides) Psychotropic Drugs Antibiotics Nucleic Acids Sections contain introductions to basic concepts underlying the fields addressed and a specific bibliography relating to each field. Each experiment provides detailed instructions in a user-friendly format, and can be carried out, in most cases, without the need for expensive instrumentation. This comprehensive laboratory manual offers much-needed instructional material for teaching laboratory classes in pharmaceutical chemistry. The breadth of subject matter covered provides a variety of choices for structuring a laboratory course.

Applied Thin-Layer Chromatography RAJEEV BANSAL

This expansive and practical textbook contains organic chemistry experiments for teaching in the laboratory at the undergraduate level covering a range of functional group transformations and key organic reactions. The editorial team have collected contributions from around the world and standardized them for publication. Each experiment will explore a modern chemistry scenario, such as: sustainable chemistry; application in the pharmaceutical industry; catalysis and material sciences, to name a few. All the experiments will be complemented with a set of questions to challenge the students and a section for the instructors, concerning the results obtained and advice on getting the best outcome from the experiment. A section covering practical aspects with tips and advice for the instructors, together with the results obtained in the laboratory by students, has been compiled for each experiment. Targeted at professors and lecturers in chemistry, this useful text will provide up to date experiments putting the science into context for the students.

Instrumental Liquid Chromatography Oswaal Books

Content : 1. Some Basic Concepts of Chemistry, 2. Structure of Atom, 3. Classification of Elements and Periodicity in Properties, 4. Chemical Bonding and Molecular Structure, 5. States of Matter, 6. Thermodynamics, 7. Equilibrium, 8. Redox Reactions, 9. Hydrogen, 10. s-Block Elements 11. p-Block Elements, 12. Organic Chemistry—Some Basic Principles and Techniques 13. Hydrocarbons 14. Environmental Chemistry I. Appendix II. Log-antilog Table

Biology Lab Manual Class XI | As per the latest CBSE syllabus and other State Board following the curriculum of CBSE, John Wiley & Sons

NEET 37 Years — Chemistry is designed to help the aspiring students from the standpoint to strengthen their grasp and command over the concepts of Chemistry, applying them in the NEET, JIPMER and other medical entrance examinations. Salient Features: The presented book NEET 37 Years focuses on providing guidance in the subject of Chemistry. In order to generate awareness among the aspirants regarding the trend of questions asked in the examinations, solved question papers from 1988-2024 have also been included. This book is very useful for all those students who want to succeed in NEET 2025 examinations.

Conceptual Chemistry Class XI Vol. II Springer

A. Surface Chemistry 1.To prepare colloidal solution (sol) of starch, 2. To prepare a colloidal solution of egg albumin 3.To prepare colloidal solution of gum, 4. To prepare colloidal solution of aluminium hydroxide  $[Al(OH)_3]$ , 5.To prepare colloidal solution of ferric hydroxide  $[Fe(OH)_3]$ , 6.To prepare colloidal solution of arsenious sulphide  $[As_2S_3]$ , 7. To purify a freshly prepared sol by dialysis, 8. To compare the effectiveness of different common oils (Castor oil, cotton seed oil, coconut oil, kerosene oil, mustard oil) in forming emulsions. Viva-Voce B. Chemical Kinetics 1. To study the effect of concentration on the rate of reaction between sodium thiosulphate and hydrochloric acid, 2. To study the effect of temperature on the rate of reaction between sodium thiosulphate and hydrochloric acid, 3. To study the rate of reaction of iodide ions with hydrogen peroxide at different concentrations of iodide ions, 4. To study the rate of reaction between potassium iodate ( $KIO_3$ ) and sodium sulphite ( $Na_2SO_3$ ) using starch solution as indicator Viva-Voce C. Thermochemistry 1.Determine the enthalpy of dis solution of copper sulphate ( $CuSO_4 \cdot 5H_2O$ ) in water at Room temperature, 2. To determine the enthalpy of neutralization of the reaction between HCl and NaOH, 3. To determine enthalpy change during the interaction between acetone and chloroform Viva-Voce D. Electrochemistry 1.To study the variation of cell potential in  $Zn|Zn^{2+}||Cu^{2+}|Cu$ , with change in concentration of electrolytes ( $CuSO_4$  or  $ZnSO_4$ ) at room temperature Viva-Voce E.Chromatography 1.To separate the coloured components (pigment) present in the given extract of leaves and flowers by ascending paper chromatography and find their  $R_f$  values, 2. To separate the coloured components present in the mixture of red and blue inks by ascending paper chromatography and find their  $R_f$  values, 3.To separate  $Co^{2+}$  and  $Ni^{2+}$  ions present in the given mixture by using ascending paper chromatography and determine their  $R_f$  values Viva-Voce F. Preparation of Inorganic Compounds 1.Preparation of double salt of ferrous ammonium sulphate (Mohr's salt) from ferrous sulphate and ammonium sulphate, 2. To prepare a pure sample of potash alum (fitkari), 3. Preparation of crystals of potassium ferric oxalate or potassium trioxalato ferrate (III) Viva-Voce G. Preparation of Organic Compounds 1. Preparation of iodoform from ethyl alcohol or acetone, 2. Preparation of acetanilide in laboratory, 3. Preparation of b-Naphthol aniline dye, 4. To prepare a pure sample of dibenzalacetone, 5. To prepare a pure sample of p-nitro acetanilide Viva-Voce H. Tests for the Functional Groups Present in Organic Compounds Viva-Voce I. Study of Carbohydrates, Fats and Proteins 1.To study simple reactions of carbohydrate, 2. To study simple reactions of fats, 3. To study simple reactions of proteins, 4. To investigate presence of carbohydrates, fats and proteins in food stuffs Viva-Voce J. Volumetric Analysis 1. To prepare 250 ml of M/10 solution of oxalic acid, 2.To prepare 250 ml of M/10 solution of ferrous ammonium sulphate, 3. Prepare M/20 solution of oxalic acid, with its help find out the molarity and strength of the given solution of potassium permanganate, 4.Prepare M/20 solution of Mohr's salt, using this solution determine the molarity and strength of potassium permanganate solution Viva-Voce K. Qualitative Analysis Viva-Voce INVESTIGATORY PROJECTS 1.To study the presence of oxalate ions in guava fruit at different stages of ripening. 2. To study the quantity of casein present in different samples of milk. 3.Preparation of soyabean milk and its comparison with natural milk with respect to curd formation, effect of temperature etc.4.To study the effect of potassium bisulphite as food preservative at various concentrations. 5. To study the digestion of starch by salivary amylase and the effect of pH and temperature on it. 6. To study and compare the rate of fermentation of the following materials—wheat flour, gram flour, potato juice and carrot juice. 7.To extract essential oils present

in saunf (aniseed), ajwain (corum), illaichi (cardomom).8. To detect the presence of adulteration in fat, oil and butter, 9.To investigate the presence of  $NO_2^-$  in brinjal.

THIN LAYER CHROMATOGRAPHY (SET PRICE OF 34 BOOKS) CRC Press

1.Basic Laboratory Techniques 1.To cut a glass tube or glass rod, 2.To bend the glass rod at an angle, 3.To draw a glass jet from a glass tube 4.To bore a cork and fit a glass tube into it Viva-Voce 2.Characterisation and Purification of Chemical Substances 1.To determine the melting point of the given unknown organic compound and its identification (simple laboratory technique) Viva-Voce 2.To determine the boiling point of a given liquid when available in small quantity (simple laboratory method) Viva-Voce 3.To prepare crystals of pure potash alum  $[K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O]$  from the given impure sample 4.To prepare the pure crystals of copper sulphate from the given crude sample 5.To prepare pure crystals of benzoic acid from a given impure sample Viva-Voce 3.Measurement of pH Values 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 (HCl) and weak acid ( $CH_3COOH$ ) of same concentration 3.To study the pH change in the titration of strong base Vs. strong acid by using universal indicator paper 4.To study the pH change by common ion ( $CH_3COO^-$  ion) in case of weak acid ( $CH_3COOH$ ) 5.To determine the change in pH value of weak base ( $NH_4OH$ ) in presence of a common ion ( $NH_4^+$ ) Viva-Voce 4.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.To study the shift in equilibrium between  $[Co(H_2O)_6]^{2+}$  and  $Cl^-$  ions by changing the concentrations of either of the ions Viva-Voce 5. Quantitative Analysis 1.To prepare M/10 oxalic acid solution by direct weighing method 2.To prepare M/10 solution of sodium carbonate by direct weighing method 3.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 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.Qualitative Analysis Analysis of Anions Analysis of Cations Viva-Voce 7.Detection of Elements in Organic Compounds 1.To detect the presence of nitrogen, sulphur and halogens in a given organic compound by Lassaigne's test 2.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.Checking of Bacterial Contamination in Water 1.To check the bacterial contamination in drinking water by testing sulphide ions Viva-Voce 2. Methods of Water Purification 1.To purify water from suspended impurities by using sedimentation 2. To purify water by boiling 3. o purify water by distillation method 4. To purify water by reverse osmosis technique 5. To purify water by GAC method 6. To purify water by bleach treatment 7. To purify water by oxidising agent 8. To purify water by ozone treatment method Viva-Voce 3. Water Analysis 1.To test the hardness of different water samples Viva-Voce 4. Foaming Capacity of Various Soaps 1 .To compare the foaming capacity of different washing soaps 2. To study the effect of addition of sodium carbonate on foaming capacity of washing soap Viva-Voce 5. Tea Analysis 1.To study the acidity of different samples of tea leaves (tea) by using pH paper Viva-Voce 6.Analysis of Fruits and Vegetable Juices 1. To analysis the fruit and vegetable juices for the constituent present in them Viva-Voce 7. Rate of Evaporation 1. To study the rate of evaporation of different liquids IViva-Voce 8. Effect of Acids and Bases on Tensile Strength of Fibres 1.To compare the tensile strength of natural fibres and synthetic fibres 2.To study the effect of acids and bases on tensile strength of different fibres Viva-Voce

Food Processing Technology CRC Press

An Excellent Book in Accordance with the latest syllabus for Class-11 Prescribed by CBSE/NCERT and Adopted by Various State Education Boards Introduction : (1. Necessary equipments, chemicals and other things for practical work, 2. General Instructions for practical work, 3. Special Instructions for practical note-book, Drawing and Recording, 4. Special Instructions for spotting.) EXPERIMENTS 1. To study and describe the flowering plant belonging to family (one from each of the families) (a) Solanaceae(b)Fabaceae(c)Liliaceae. 2.To prepare temporary slide of transverse section of dicot/monocot stem/dicot/ monocot root. 3. To study osmosis by potato-osmometer. 4. To study of plasmolysis in epidermal peel of Tradescantia or Rhoen leaf. 5. To study the distribution of stomata on the upper and lower surface of a leaf. 6.To compare the rate of transpiration in upper and lower surface of the leaf. 7. To test the presence of sugars (Glucose, Sucrose and Starch), proteins and fats and to detect their presence in suitable plant and animal materials. 8. To study the separation of plant pigments by paper chromatography. 9. To study the rate of respiration in flower buds/leaf tissue and germinating seeds. 10A.To test presence of urea in urine. 10B. To test presence of sugar in urine. 10C. To detect presence of albumin in urine. 10D.To test urine for presence of bile salt. SPOTTING 1. Study of compound microscope. 2. To study the plant specimen and identification with reasons : Bacteria, Oscillatoria, Spirogyra, Rhizopus, Mushroom, Yeast, Liverwort, Moss, Fern, Pine, One Monocotyledonous plant, One dicotyledonous plant and one Lichen. 3. Study of animal specimens 1. Amoeba 2. Hydra 3.Fasciola Hepatica (Liver fluke) 4. Ascaris Lumbricoides 5. Hirudinaria Granulosa 6. Pheretima Posthuma 7. Palaemon 8. Bombyx Mori 9. Apis Indica (Honeybee)10. Pila Globosa (Snail) 11. Asterias (Starfish) 12. Scoliodon (Dogfish/Shark) 13.Labeo Rohita (Rohu) 14. Rana Tigrina (Frog) 15. Hemidactylus (Lizard) 16. Columba Livia (Pigeon) 17. Orytolagus Cuniculus(Rabbit). 4A.To study the plant tissues—Palisade cells, Guard cells, Parenchyma, Collenchyma, Sclerenchyma, Xylem and Phloem through prepared slide. 4B.To study the animal tissue squamous epithelium, muscles fibres through prepared slide. 4C. To study mammalian blood smear by temporary/permanent slide. 5. Study of mitosis in root tip of onion. 6. Study of different modification in root, stem and leaves. 7. To study and identify different types of inflorescence (Racemose and Cymose). 8. To study imbibition in seed/raisins. 9. To demonstrate that anaerobic respiration take place in the absence of air. 10. To study human skeleton and joints. 11. To study the external features of cockroach with help of model or chart

Practical Biochemistry for Colleges EduGorilla Community Pvt. Ltd.

An Excellent Book in Accordance with the latest syllabus for Class-11 Prescribed by CBSE/NCERT and Adopted by Various State Education Boards. (A) Basic Laboratory Techniques - 1. To cut a glass tube or glass rod, 2. To bend the glass rod at an angle, 3. To draw a glass jet from a glass tube, 4. To bore a cork and fit a glass tube into it. (B) Characterisation and Purification of Chemical Substances- 1. To determine the melting point of the given unknown organic compound and its identification (simple laboratory technique), 2. To determine the boiling point of a given liquid when available in small quantity (simple laboratory method), 3. To prepare crystals of pure potash alum  $[K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O]$  from the given impure sample, 4. To prepare the pure crystals of copper sulphate from the given crude sample, 5. To prepare pure crystals of benzoic acid from a given impure sample. (C) Measurement of pH Values 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 (HCl) and weak acid ( $CH_3COOH$ ) of same concentration, 3. To study the pH change in the titration of strong base Vs. strong acid by using universal indicator paper, 4. To study the pH change by common ion ( $CH_3COO^-$  ion) in case of weak acid ( $CH_3COOH$ ), 5. To determine the change in pH value of weak base ( $NH_4OH$ ) in presence of a common ion ( $NH_4^+$ ), (D) 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. To study the shift in equilibrium between  $[Co(H_2O)_6]^{2+}$  and  $Cl^-$  ions by changing the concentrations of either of the ions, (E) Quantitative Analysis 1. To prepare M/10 oxalic acid solution by direct weighing method, 2.To

prepare M/10 solution of sodium carbonate by direct weighing method, 3.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 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. Analysis of Anions, 2. Analysis of Cations (G) Detection of Elements in Organic Compounds 1.To detect the presence of nitrogen, sulphur and halogens in a given organic compound by Lassaigne's test, 2. To detect the presence of nitrogen, sulphur and halogens in the given organic compound sample number ..... by Lassaigne's test INVESTIGATORY PROJECTS (A) Checking of Bacterial Contamination in Water 1.To check the bacterial contamination in drinking water by testing sulphide ions (B) Methods of Water Purification 1.To purify water from suspended impurities by using sedimentation, 2. To purify water

by boiling, 3.To purify water by distillation method, 4.To purify water by reverse osmosis technique. 5.To purify water by GAC method, 6.To purify water by bleach treatment, 7.To purify water by oxidising agent, 8.To purify water by ozone treatment method. (C) Water Analysis 1. To test the hardness of different water samples. (D) Foaming Capacity of Various Soaps 1.To compare the foaming capacity of different washing soaps, 2.To study the effect of addition of sodium carbonate on foaming capacity of washing soap (E) Tea Analysis 1. To study the acidity of different samples of tea leaves (tea) by using pH paper (F) Analysis of Fruits and Vegetable Juices 1. To analyse the fruit and vegetable juices for the constituent present in them (G) Rate of Evaporation 1. To study the rate of evaporation of different liquids (H) Effect of Acids and Bases on Tensile Strength of Fibres 1.To compare the tensile strength of natural fibres and synthetic fibres, 2.To study the effect of acids and bases on tensile strength of different fibres. Log & Antilog Table