

Class XII

# LABORATORY MANUAL

# CHEMISTRY



LABORATORY MANUAL CHEMISTRY

Class XII

NCERT



# Ncert Chemistry Lab Manual Class 12

**JS Bruner**



## **Ncert Chemistry Lab Manual Class 12:**

**NCERT English Class 12** Rajamohan Srivastava, ,Amit Ganguli,2025-04-20 Section A Flamingo Prose and Poetry Flamingo A Prose 1 The Last Lesson Alphonse Daudet 2 Lost Spring Arundhati Jay 3 Deep Water William Douglas 4 The Rattrap Selma Lagerlof 5 Indigo Louis Fischer 6 Poets and Pancakes Ashokmitran 7 The Interview Christopher Silverster 8 Going Places A P Barton Flaming B Poetry 1 My Mother at sixty Six Kamala Das 2 An Elementary School Classroom in a Slum Stephen Spender 3 Keeping Quiet Pablo Neruda 4 A Thing of Beauty John Keats 5 A Roadside Stand Robert Frost 6 Aunt Jennifer's Tigers Adrienne Rich Section B Vistas Supplementary Reader 1 The Third Level Jack Finney 2 The Tiger King Kalki 3 Journey to the End of the Earth Tishani Doshi 4 The Enemy Pearl S. Buck 5 Should Wizard Hit Mommy John Updike 6 On the Face of it Susan Hill 7 Evans Tries an O Level Colin Dexter 8 Memoirs of Childhood Zitkala-Sa and Bama Section C Grammar Reading and Writing 1 Unseen Passage 2 Case Based Factual Passages 3 Advertisement Notice and Poster 4 Writing Invitation and Replies 5 Letter Writing 6 Report Writing 7 Article 8 Debate 9 Speech Writing Board Examination Paper **CBSE Class 12th Chemistry (10 Most Likely Question Papers with Solution) By Career Point Kota** Career Point Kota,2020-07-28 The CBSE has made certain changes in the assessment structure from the session 2019-20 onwards. In the new scheme of examination CCE and term system has been replaced with the Internal Assessment. Single Annual Exam by CBSE itself. Single exam conducted by CBSE will carry 80 marks whereas 20 marks are left to the schools for internal assessment. CBSE has issued detailed guidelines on how the internal marks will be divided among different activities. From 2019 onwards there will be internal choices in board examinations with increased internal options in the question paper. Considering this change now a student has to prepare accordingly for board examinations. The new assessment format brought with it excitement as well as anxiety. And to help them prepare and excel in their CBSE board examination Career Point Kota has developed a series of 10 Most Likely Question Papers with Solutions. The Key Features of Most Likely Question Papers with Solutions Series: New OBJECTIVE TYPE question in each paper. Syllabus of CBSE 2019-20. Based on the latest CBSE Syllabus. Pattern. Mind map of each chapter is given to visualize and help acquire a better understanding. Important terms, facts, formulae and quick revision tips are given. Covers questions asked in previous year board exams. Toppers Answer Sheet as released by CBSE to understand the scoring technique. We hope this book will gratify students' need for the new CBSE pattern board exam and smoothen their path to success. We wish to utilize the opportunity to place on record our special thanks to all the members of the Content Development team for their efforts to create this wonderful book.

**Chemistry Class 12** Dr. S. C. Rastogi, ,Er. Meera Goyal,2022-09-30 1 Solid State 2 Solutions 3 Electro Chemistry 4 Chemical Kinetics 5 Surface Chemistry 6 General Principles And Processes Of Isolation Of Elements 7 P-Block Elements 8 D And F Block Elements 9 Coordination Compounds And Organometallics 10 Haloalkanes And Haloarenes 11 Alcohols Phenols And Ethers 12 Aldehydes Ketones And Carboxylic Acids 13 Organic Compounds Containing Nitrogen 14 Biomolecules 15

Polymers 16 Chemistry In Everyday Life Appendix 1 Important Name Reactions And Process 2 Some Important Organic Conversion 3 Some Important Distinctions Long Antilog Table Board Examination Papers **NCERT** **Mathematics Class 12** Dr. Ramdev Sharma ,Er. Meera Goyal,2024-08-10 Unit I 1 Relations 2 Functions 3 Inverse Trigonometric Functions Unit II 4 Matrices 5 Determinants 6 Adjoint and Inverse of a Matrix 7 Solution of a System of Linear Equations Unit III 8 Continuity 9 Differentiability 10 Differentiation 11 Second Order Derivative 12 Rolle s Theorem and Lagrange s Mean Value Theorem 13 Applications of Derivatives 14 Increasing and Decreasing Functions 15 Tangent and Normal 16 Approximation 17 Maxima and Minima 18 Indefinite Integrals 19 Definite Integrals 20 Applications of Integrals 21 Differential Equations 22 Applications of Differential Equations Unit IV 23 Vector 24 Scalar or Dot Product of Two Vectors 25 Vector or Cross Product of Two Vectors 26 Angle Between Two Lines 27 Straight Line 28 The Plane Unit V 29 Linear Programming Unit VI 30 Multiplication Theorem of Probability 31 Theorem of Total Probability and Bayes Theorem 32 Random Variable and Probability Distribution 33 Bernoulli Trials and Binomial Distribution Board Examination Papers **INNOVATIVE SCIENCE TEACHING** RADHA MOHAN,2007-02-07 Science teaching has recently evolved as a blend of conventional methods and modern aids owing to the changing needs and techniques of education This updated Third Edition aims to strike this balance between modern teaching methods and time tested theories All the existing chapters are suitably updated and new chapters on theories of learning teaching models and statistics are included in the text Checklists are provided to help teachers handpick appropriate material from the vast available resources The introductory chapter on statistics should help them interpret and analyze the test scores of their students THIS NEW EDITION FEATURES Four new chapters Statistics for Science Teacher Theories of Learning Models of Teaching and Constructivism in Science Education Updated e learning materials and website addresses relevant to science teaching and teachers Completely revised chapters and elaborate coverage of all aspects of modern teaching This edition of Innovative Science Teaching is designed for the undergraduate and postgraduate students of education specializing in science teaching It can also be used as reference by physical science teachers and teacher trainees **NCERT/CBSE** **Biology Class 12** Dr. Sunita Bhagia,Megha Bansal,2024-09-27 1 Reproduction in Organisms 2 Sexual Reproduction in Flowering Plants 3 Human Reproduction 4 Reproductive Health 5 Principles of Inheritance and Variation 6 Molecular Basis of Inheritance 7 Evolution 8 Human Health and Diseases 9 Strategies for Enhancement in Food Production 10 Microbes in Human Welfare 11 Principles and Processes of Biotechnology 12 Biotechnology and its Applications 13 Organism and Populations 14 Ecosystem 15 Biodiversity and Conservation 16 Environmental Issues Appendix Selected Questions Answers From Previous Years CBSE Examinations Chapterwise Objective Type Questions Board Examination Papers *Oswaal CBSE Question Bank Class 12 English Core, Physics, Chemistry & Mathematics (Set of 4 Books) Chapterwise and Topicwise Solved Papers For Board Exams 2025* Oswaal Editorial Board,2024-02-15 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

**Oswaal One for All Class 12 English, Physics, Chemistry & Mathematics (Set of 4 books) (For CBSE Board Exam 2024)** Oswaal Editorial Board, 2023-07-31 Description of the product Strictly as per the latest CBSE Syllabus dated March 31 2023 Cir No Acad 39 2023 Acad 45 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

Practical/Laboratory Manual Chemistry Class XII based on NCERT guidelines by Dr. S. C. Rastogi, Er. Meera Goyal Dr. S. C. Rastogi, Er. Meera Goyal, 2020-06-22 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  $\text{Al(OH)}_3$  5 To prepare colloidal solution of ferric hydroxide  $\text{Fe(OH)}_3$  6 To prepare colloidal solution of arsenious sulphide  $\text{As}_2\text{S}_3$  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  $\text{KIO}_3$  and sodium sulphite  $\text{Na}_2\text{SO}_3$  using starch solution as indicator Viva Voce C Thermochemistry 1 Determine the enthalpy of dissolution of copper sulphate  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  in water at Room temperature 2 To determine the enthalpy of neutralization of the reaction between  $\text{HCl}$  and  $\text{NaOH}$  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  $\text{Zn}|\text{Zn}^{2+}||\text{Cu}^{2+}|\text{Cu}$  with change in concentration of electrolytes  $\text{CuSO}_4$  or  $\text{ZnSO}_4$  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  $\text{Co}^{2+}$  and  $\text{Ni}^{2+}$  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 *p*-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 coriander cardamom 8 To detect the presence of adulteration in fat oil and butter 9 To investigate the presence of  $\text{NO}_2$  in brinjal

*Practical/Laboratory Manual Chemistry Class XI based on NCERT guidelines by Dr. S. C. Rastogi & Er. Meera Goyal Dr. S. C. Rastogi , Er. Meera Goyal, 2020-06-23* 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  $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$  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  $\text{CH}_3\text{COOH}$  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  $\text{CH}_3\text{COO}^-$  ion in case of weak acid  $\text{CH}_3\text{COOH}$  5 To determine the change in pH value of weak base  $\text{NH}_4\text{OH}$  in presence of a common ion  $\text{NH}_4^+$  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  $\text{Co}^{2+}$  and  $\text{Cl}^-$  ions by changing the concentrations of either of the ions

**E Quantitative Analysis**

- 1 To prepare  $0.1\text{ M}$  oxalic acid solution by direct weighing method
- 2 To prepare  $0.1\text{ M}$  solution of sodium carbonate by direct weighing method
- 3 To determine the strength of given solution of sodium hydroxide by titrating it against  $0.1\text{ N}$  or  $0.2\text{ M}$  solution of oxalic acid
- 4 To determine the strength of a given solution of hydrochloric acid by titrating it against a standard  $0.1\text{ N}$  or  $0.2\text{ M}$  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

*Practical/Laboratory Manual Chemistry Class - XI* Er. Meera Goyal, 2021-05-29

**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  $\text{K}_2\text{SO}_4 \cdot \text{Al}_2(\text{SO}_4)_3 \cdot 24\text{H}_2\text{O}$  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  $\text{HCl}$  and weak acid  $\text{CH}_3\text{COOH}$  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  $\text{CH}_3\text{COO}^-$  ion in case of weak acid  $\text{CH}_3\text{COOH}$
- 5 To determine the change in pH value of weak base  $\text{NH}_4\text{OH}$  in presence of a common ion  $\text{NH}_4^+$

**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  $\text{Co H}_2\text{O 6 2}$  and  $\text{Cl}$  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

□□□ □□□□□□□ **Jeev Vigyan - Biology Class 12** Dr. Suneeta Bhagia, Megha Bansal, 2023-03-20 1 Reproduction in Organisms 2 Sexual Reproduction in Flowering Plants 3 Human Reproduction 4 Reproductive Health 5 Principles of Inheritance and Variation 6 Molecular Basis of Inheritance 7 Evolution 8 Human Health and Diseases 9 Strategies for Enhancement in Food Production 10 Microbes in Human Welfare 11 Principles and Processes in Biotechnology 12 Biotechnology and its Applications 13 Organism and Populations 14 Ecosystem 15 Biodiversity and Conservation 16 Environmental Issues Chapter Related Glossary Appendix Selected Questions Answers From Previous Years Exam Competitive Examination Appendix Board Examination Papers **Annual Report** India. Department of Information Technology, 2010 *Comprehensive Practical Chemistry XII* Dr. N . K. Verma, B. K. Vermani, Dr. Neera Verma, K . K. Rehani, 2011-11 *Practical/Laboratory Manual Chemistry Class XII based on NCERT guidelines* Dr. S. C. Rastogi, , Er. Meera Goyal, 2022-02-25 An Excellent Book in Accordance with the latest syllabus for class XII Prescribed by CBSE NCERT and Adopted by Various State Education Boards A Surface Chemistry 1 To prepare colloidal solution sol of



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**Chemistry Lab Manual  
Class XII | follows the latest CBSE syllabus and other State Board following the CBSE Curriculum.**

Mr. Rohit Manglik, Mr. Kaushalesh Dwivedi, 2022-08-04 With the NEP and expansion of research and knowledge has changed the face of education to a great extent In the Modern times education is not just constricted to the lecture method but also includes a practical knowledge of certain subjects This way of education helps a student to grasp the basic concepts and principles Thus trying to break the stereotype that subjects like Physics Chemistry and Biology means studying lengthy formulas complex structures and handling complicated instruments we are trying to make education easy fun and enjoyable

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**Complete Science**

**Laboratory Manual CBSE For Class 10** Education Experts, 2019-10      Lab Manual Science Class 10 Neena Sinha, R. Rangarajan, Rajesh Kumar, These Lab Manuals provide complete information on all the experiments listed in the latest CBSE syllabus The various objectives materials required procedures inferences etc have been given in a step by step manner Carefully framed MCQs and short answers type questions given at the end of the experiments help the students prepare for viva voce      *Who's who in Finance and Industry*, 2001

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