

Class XII

# LABORATORY MANUAL

# CHEMISTRY



LABORATORY MANUAL CHEMISTRY

Class XII

NCERT



# Ncert Chemistry Lab Manual For Class 1

**Anju Rawlley,D. V. Saraf**



## **Ncert Chemistry Lab Manual For Class 1:**

Practical/Laboratory Manual Physics Class XII based on NCERT guidelines by Dr. Sunita Bhagia & Megha Bansal Dr. J. P. Goel, Er. Meera Goyal, 2020-06-24

**SECTION A EXPERIMENTS**

- 1 To determine resistance per cm of a given wire by plotting a graph for potential difference versus current
- 2 To find resistance of a given wire using meter bridge and hence determine the specific resistance Resistivity of its material
- 3 To verify the laws of combination Series Parallel of resistance using ammeter bridge
- 4 To compare the e m f of two given primary cells using potentiometer
- 5 To determine the internal resistance of a given primary cell e g Leclanche cell using potentiometer
- 6 To determine the resistance of a galvanometer by half deflection method and to find its figure of merit
- 7 A To convert a given galvanometer of known resistance and figure of merit into an ammeter of desired range and to verify the same
- 7 B To convert a given galvanometer of known resistance and figure of merit into a voltmeter of desired range and to verify the same
- 8 To find the frequency of AC mains with a sonometer and horse shoe magnet

**SECTION B EXPERIMENTS**

- 1 To find the value of  $v$  for different values of  $u$  in case of a concave mirror and to find the focal length
- 2 To find the focal length of a convex lens by plotting graph between  $u$  and  $v$  or  $1/u$  and  $1/v$
- 3 To find the focal length of a convex mirror using a convex lens
- 4 To find the focal length of a concave lens using a convex lens
- 5 To determine the angle of minimum deviation for a given prism by plotting a graph between the angle of incidence and angle of deviation
- 6 To determine refractive index of a glass slab using a travelling microscope
- 7 To find the refractive index of a liquid by using a convex lens and a plane mirror
- 8 To draw I V characteristics curve of a p n junction in forward bias and reverse bias
- 9 To draw the characteristics curve of a zener diode and to determine its reverse break down voltage
- 10 To study the characteristics of a common emitter n p n or p n p transistor and to find out the values of current and voltage gains

**SECTION A ACTIVITIES**

- 1 To measure the resistance and impedance of an inductor with or without iron core
- 2 To measure resistance voltage AC DC current AC and check continuity of given circuit using multimeter
- 3 To assemble a household circuit comprising of three bulbs three on off switches a fuse and a power source
- 4 To assemble the components of a given electrical circuit
- 5 To study the variation in potential drop with length of a wire for a steady current
- 6 To draw the diagram of a given open circuit comprising atleast a battery resistor rheostat key ammeter and voltmeter Make the components that are not connected in proper order and correct the circuit and also the circuit diagram

**SECTION B ACTIVITIES**

- 1 To study effect of intensity of light by varying distance of the source on an LDR Light Depending Resistor
- 2 To identify a diode a LED a transistor an IC a resistor and a capacitor from mixed collection of such items
- 3 Use a multimeter to i identify the transistor ii distinguish between n p n and p n p type transistor iii see the unidirectional flow of current in case of a diode and a LED iv Check whether a given electronic components e g diode transistor or IC is in working order
- 4 To observe refraction and lateral deviation of a beam of light incident obliquely on a glass slab
- 5 To observe polarisation of light using two polaroids
- 6 To observe diffraction of light due to a thin slit
- 7 To study the nature and size of the image formed by i convex lens ii concave

mirror on a screen by using candle and a screen for different distance of the candle from the lens mirror 8 To obtain a lens combination with the specified focal length by using two lenses from the given set of lenses

**SUGGESTED INVESTIGATORY PROJECT**

- 1 To Study Various factors on which the Internal Resistance EMF of a cell depends
- 2 To study the variations in current following in a circuit containing L D R because of variation a In the power of incandescent lamp used to illuminate the L D R Keeping all the lamps in fixed position b In the Distance of a incandescent lamp of fixed power used to illuminate the L D R
- 3 To find the refractive indices of a Water b Oil Transparent using a plane mirror an equiconvex lens made from a glass of known refractive index and an adjustable object needle
- 4 To design an appropriate logic gate combination for a given truth table
- 5 To investigate the relation between the ratio of i Output and Input voltage ii Number of turns in secondary coils and primary coils of a self designed transformer
- 6 To Investigate the dependence of angle of deviation on the angle of incidence using a hollow prism filled one by one with different transparent fluids
- 7 To Estimate the charge induced on each one of the two identical styrofoam balls suspended in a vertical plane by making use of Coulomb's Law
- 8 To study the factors on which the self inductance of a coil depends by observing the effect of this coil when put in series with a resistor bulb in a circuit fed up by an a c source of adjustable frequency
- 9 To study the earth's magnetic field using a tangent galvanometer

**APPENDIX** Some Important Tables of Physical Constants Logarithmic and other Tables

CBSE Class 12th Chemistry (10 Most Likely Question Papers with Solution) By 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:

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- Important terms, facts, formulae and quick revision tips are given
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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

**The Education Quarterly ,1967      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

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Research and Training (India),2004      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  $Al(OH)_3$
- 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 dissolution 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  $\beta$ -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 caseine 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<sub>2</sub> in brinjal

*International Books in Print*,1991     *Indian Books in Print* ,2002     **Who's who in Finance and Industry** ,2001     *General Chemistry I* Steven Rowley,2005-08-23     **General Chemistry ... Laboratory Manual and Note Book** American School (Lansing, Ill.),1906

## **Ncert Chemistry Lab Manual For Class 1** Book Review: Unveiling the Power of Words

In a global driven by information and connectivity, the energy of words has be more evident than ever. They have the capacity to inspire, provoke, and ignite change. Such could be the essence of the book **Ncert Chemistry Lab Manual For Class 1**, a literary masterpiece that delves deep in to the significance of words and their impact on our lives. Compiled by a renowned author, this captivating work takes readers on a transformative journey, unraveling the secrets and potential behind every word. In this review, we will explore the book is key themes, examine its writing style, and analyze its overall effect on readers.

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### **Ncert Chemistry Lab Manual For Class 1 Introduction**

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