



LABORATORY Manual

CHEMISTRY

CBSE Class XI

Experiments
Projects
Viva-Voce



Chemistry Lab Manual For Class Xi

Cooper



Chemistry Lab Manual For Class Xi:

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 $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24H_2O$ 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^{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

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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

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emphasizes experimental design data analysis and problem solving Inherent in the design is the emphasis on communication skills both written and oral Students work in groups on open ended projects in which they are given an initial scenario and then asked to investigate a problem There are no formalized instructions and students must plan and carry out their own investigations

Chemical Abstracts ,1927 *Who's who in America* John W. Leonard,Albert Nelson Marquis,1928 Vols 28 30 accompanied by separately published parts with title Indices and necrology *Chemical Principles* Peter Atkins,Loretta Jones,2007-08 Written for calculus inclusive general chemistry courses Chemical Principles helps students develop chemical insight by showing the connections between fundamental chemical ideas and their applications Unlike other texts it begins with a detailed picture of the atom then builds toward chemistry s frontier continually demonstrating how to solve problems think about nature and matter and visualize chemical concepts as working chemists do Flexibility in level is crucial and is largely established through clearly labeling separating in boxes the calculus coverage in the text Instructors have the option of whether to incorporate calculus in the coverage of topics The multimedia integration of Chemical Principles is more deeply established than any other text for this course Through the unique eBook the comprehensive Chemistry Portal Living Graph icons that connect the text to the Web and a complete set of animations students can take full advantage of the wealth of resources available to them to help them learn and gain a deeper understanding

The Lancet ,1884 **The United States Catalog** ,1913 **Stars and Folkways; the Substance of a Faith** Clark Sutherland Northup,David F. Barrow,Ellis Merton Coulter,Georgia High School Association,John Eldridge Drewry,Joseph Jacobs,Sam J. Slate,University of Georgia,William H. Barrett,William L. McPherson,1922 **Problems in Educational Administration** George Drayton Strayer,Nickolaus Louis Engelhardt,1925

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Table of Contents Chemistry Lab Manual For Class Xi

1. Understanding the eBook Chemistry Lab Manual For Class Xi
 - The Rise of Digital Reading Chemistry Lab Manual For Class Xi
 - Advantages of eBooks Over Traditional Books
2. Identifying Chemistry Lab Manual For Class Xi
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Chemistry Lab Manual For Class Xi
 - User-Friendly Interface
4. Exploring eBook Recommendations from Chemistry Lab Manual For Class Xi
 - Personalized Recommendations
 - Chemistry Lab Manual For Class Xi User Reviews and Ratings

- Chemistry Lab Manual For Class Xi and Bestseller Lists
- 5. Accessing Chemistry Lab Manual For Class Xi Free and Paid eBooks
 - Chemistry Lab Manual For Class Xi Public Domain eBooks
 - Chemistry Lab Manual For Class Xi eBook Subscription Services
 - Chemistry Lab Manual For Class Xi Budget-Friendly Options
- 6. Navigating Chemistry Lab Manual For Class Xi eBook Formats
 - ePub, PDF, MOBI, and More
 - Chemistry Lab Manual For Class Xi Compatibility with Devices
 - Chemistry Lab Manual For Class Xi Enhanced eBook Features
- 7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Chemistry Lab Manual For Class Xi
 - Highlighting and Note-Taking Chemistry Lab Manual For Class Xi
 - Interactive Elements Chemistry Lab Manual For Class Xi
- 8. Staying Engaged with Chemistry Lab Manual For Class Xi
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Chemistry Lab Manual For Class Xi
- 9. Balancing eBooks and Physical Books Chemistry Lab Manual For Class Xi
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Chemistry Lab Manual For Class Xi
- 10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
- 11. Cultivating a Reading Routine Chemistry Lab Manual For Class Xi
 - Setting Reading Goals Chemistry Lab Manual For Class Xi
 - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of Chemistry Lab Manual For Class Xi
 - Fact-Checking eBook Content of Chemistry Lab Manual For Class Xi
 - Distinguishing Credible Sources

13. Promoting Lifelong Learning
 - Utilizing eBooks for Skill Development
 - Exploring Educational eBooks
14. Embracing eBook Trends
 - Integration of Multimedia Elements
 - Interactive and Gamified eBooks

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web sg iron is a type of cast iron that has been treated while molten with an element such as magnesium or cerium to induce the formation of free graphite as nodules or spherulites the followings are the grade requirement to the chemical components and physical properties and also grade comparison chart

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web chemical analysis carbon 3 40 3 85 phosphorous 0 10 max manganese 0 10 0 30 sulphur 0 02 max silicon 2 30 3 10 magnesium 0 07 max applications bs2789 grade 500 7 is suited for applications such as gears pistons valve bodies dies and moulds and for applications that require good noise and vibration damping mechanical properties

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web mar 1 2001 abstract spheroidal graphite sg irons with a variety of matrix structure have been produced the correlation between tensile properties impact toughness hardness and pearlite content is

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web cross reference table for cast iron sg500 7 is and its european equivalent en gjs 500 7 5 3200 en european equivalent grade for spheroidal graphite cast iron sg500 7 is en gjs 500 7 5 3200 chemical composition and properties of european equivalents en for sg500 7 india is en gjs 500 7 5 3200

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web s g cast iron is defined as a high carbon containing iron based alloy in which the graphite is present in compact spherical shapes rather than in the shape of flakes the latter being typical of gray cast iron as nodular or spheroid cal graphite cast iron sometimes referred to as ductile iron constitutes a family of cast irons in which the

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web country india standard is grade sg500 7 vch50 B450 cast iron with spheroidal graphite vch50 B450 vch50 B450 all equivalent grades chemical composition mechanical and technological properties types of delivery of grade vch50 B450 B81 castings of cast iron gray and malleable cast iron

ductile iron wikipedia - Aug 03 2022

web ductile iron also known as ductile cast iron nodular cast iron spheroidal graphite iron spheroidal graphite cast iron 1 and sg iron is a type of graphite rich cast iron discovered in 1943 by keith millis 2 while most varieties of cast iron are weak in tension and brittle ductile iron has much more impact and fatigue resistance due

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web sometimes referenced as a adaptable adamant bs2789 casting 500 7 is a spheroidal graphite adamant that offers bigger strength chafe attrition and hardening capabilities to that of 400 15 or 420 12 s g adamant grades

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web download table chemical composition of spheroidal graphite sg500 7 from publication optimization of machining parameter on surface roughness in drilling of sg 500 7 material a

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web uni 4544 gs500 7 ductile cast iron the sg iron grade gs500 7 in standard uni 4544 is also known as grade 500 7 iso 1083 qt500 7 gb 1348 and 70 50 05 astm a536 this material grade is also equal to ggg50 din 1693 en gjs 500 7 en 1563 fcd 500 jis g5502 500 7 bs 2789 etc

is 1865 1991 iron castings with spheroidal or nodular graphite - Feb 26 2022

web the following six grades of spheroidal cast iron for this category are sg 700 2a sg 600 3a sg 500 7a sg 400 15a sg 400 i8a and sg 350 22a 3 2 1 these grades normally apply to castings of thickness between 30 mm and 200 mm and with a unit mass greater than 2 000 kg

en gjs 500 7 ductile cast iron ggg50 iron foundry - Sep 04 2022

web the normal chemical composition for this grade is as the following c 2 7 3 7 si 0 8 2 9 mn 0 3 0 7 p 0 1 s 0 02 the chemical composition has big difference in different standards all compositions are just for reference

sg iron grades pdf cast iron ductility scribd - Jan 28 2022

web sg iron is also called as spheroidal graphite cast iron in usa they are also called as ductile iron there are many different sg iron grades in different countries and standards however most of grades have similar requirements to the mechanical properties especially to tensile strength yield strength and elongation

india is 1865 sg500 7 sg 500 7 datasheet chemical composition - Jul 14 2023

web chemical composition mass fraction wt of the sg 500 7 element min max similar the data is being updated mechanical properties of steel grade sg 500 7 physical properties of steel grade sg 500 7 heat treatment of steel grade sg 500 7 heat treated 1491 c 1214 c technological curves of steel grade sg 500 7 no curve

en gjs 500 7 grade 500 7 sg iron steel express - Feb 09 2023

web en gjs 500 7 is an sg iron grade containing graphite nodules or spheres spheroidal graphite the rounded graphite nodules produces a more ductile cast iron that inhibits the formation of cracks sg iron such as en gjs 500 7 has a greater fatigue and impact resistance compared to grey iron

500 7 sg iron data sheet west yorkshire steel co ltd - Aug 15 2023

web keywords bs2789 grade 500 7 s g iron stockholders and suppliers delivering to the whole of the uk west yorkshire steel are suppliers of 500 7 sg iron continuous cast bar available in diameters and a limited range of flat sections sometimes referenced as a

500 7 sg iron in stock on time delivery uk supplier - Apr 30 2022

web sometimes referenced as a ductile iron bs2789 grade 500 7 is a spheroidal graphite iron that offers better strength wear resistance and hardening capabilities to that of 400 15 or 420 12 s g iron grades we welcome export enquiries for sg iron bar contact our sales office and consult our shipping policy for further details related specifications

studies on mechanical behavior of sg iron and grey cast iron - Nov 06 2022

web sg iron 500 7 chemical composition carbon 3 28 3 55 3 44 3 47 silicon 1 87 2 09 2 16 2 14 manganese 0 867 0 477 0 476 0 272 copper 0 456 0 553 0 472 0 557 sulphur 0 0866 0 0116 0 0133 0 00846 phosphorus 0 0472 0 0251 0 0230 0 0232 nickel 0 0986 0 0229 0 0162 0 0199 changes are made only in the major elements of