

# Quantitative Analysis Lab Manual

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# Quantitative Analysis Lab Solution Manual

**Arthur Herbert Church**



## **Quantitative Analysis Lab Solution Manual:**

**Laboratory Manual of Pharmaceutical Analysis I** Mr. Sushant Sudhir Pande, Dr. Niranjana S. Mahajan, Mr. Vinayak S. Marulkar, Dr. Ketaki S. Dhane, 2023-10-02 We are very pleased to put forth Laboratory Manual of Pharmaceutical Analysis I. This manual is designed as per syllabus set by PCI for first year degree course in pharmacy as per PCI B Pharm course regulations 2014. This manual is a sincere effort to improve the practical skills of students so that every student will understand the objective of each experiment and perform the practical easily. This manual is designed for outcome based education and each experiment is arranged in uniform way such as Aim, Practical Significance, Practical Outcomes, Theory, Resources Required, Precautions, Procedure, Observations, Calculations, Results, Conclusion, References, and Synopsis. Questions. Theory of each experiment is given in all fifteen experiments making the manual more interesting. The manual also focuses on practical skills as well as on the observation tables and calculations that will be helpful in qualitative and quantitative analysis. The experiments designed in this manual are written after practical performance in the laboratory by the authors themselves. We welcome all the suggestions from teachers and students regarding the conduct of the practical. Also, you can put your queries in case of difficulties directly to us so that the effective solution can be given to you. We are always with you to support and help so feel free to interact with us. We look forward for your valuable feedback regarding the manual. We acknowledge the help and co-operation extended by various persons in bringing out this manual. We are highly indebted to the authors of various books and articles mentioned in bibliography which became a major source of information for writing this manual. We also thank the publishers, designers, and printers who graciously worked hard to publish this manual in time.

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

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  2. To bend the glass rod at an angle
  3. To draw a glass jet from a glass tube
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  2. To study the shift in

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- 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

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  - 6 To purify water by bleach treatment
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- 3 Water Analysis
  - 1 To test the hardness of different water samples
- 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
- 5 Tea Analysis
  - 1 To study the acidity of different samples of tea leaves tea by using pH paper
- 6 Analysis of Fruits and Vegetable Juices
  - 1 To analysis the fruit and vegetable juices for the constituent present in them
- 7 Rate of Evaporation
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- 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** *Nielsen's Food Analysis Laboratory Manual* B. Pam Ismail, S. Suzanne Nielsen, 2024-06-20 This fourth edition laboratory manual was written to accompany Nielsen's Food Analysis Sixth Edition by the same authors New to this fourth edition of the laboratory manual are three new chapters that complement both the textbook chapters and the laboratory exercises The book again contains four introductory chapters that help prepare students for doing food analysis laboratory exercises The 26 laboratory exercises in the manual cover 24 of the 35 chapters in the textbook Many of the laboratory exercises have multiple sections to cover several methods of analysis for a particular food component or characteristic Most of the laboratory exercises include the following background reading assignment objective principle of method chemicals reagents precautions and waste disposal supplies equipment procedure data and calculations questions and references This laboratory manual is ideal for the laboratory portion of undergraduate courses in food analysis

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  $\beta$ -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 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  $\text{NO}_2$  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*

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**A Basic Laboratory Techniques**

- 1 To cut a glass tube or glass rod
- 2 To bend the glass rod at an angle
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- 4 To bore a cork and fit a glass tube into it

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**C Measurement of pH Values**

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- 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 *Solution Manual for Quantitative Chemical Analysis* Daniel C. Harris, 2010-06-18 This manual provides complete step by step worked out solutions for all problems and exercises in the main text allowing students to review and further develop their approach to them **Nuclear Science Abstracts**, 1967 **Combined Compendium of Food Additive Specifications: Analytical methods, test procedures and laboratory solutions used by and referenced in food additive specifications** Joint FAO/WHO Expert Committee on Food Additives, 2005 The specifications in this document provide information on the identity and purity of additives used directly in foods or in food production The three main objectives of these specifications are to identify the additive that has been subjected to testing for safety to ensure that the additive is of the quality required for use in food or in processing and to reflect and encourage good manufacturing practice Food Processing Technology United States. Office of Education, 1967 To assist school administrators and teachers to plan new programs *Colgate University. Autumn Bulletin. The College* Colgate University, 1885 **Pharmaceutical Journal**, 1898 **Analytical Methods for a Textile Laboratory** J. William Weaver, 1984 *The Annual American Catalog, 1900-1909*, 1904 **Laboratory Manual for the Course in Beginning Quantitative Analysis** Hobart Hurd Willard, 1922 Methods of Analysis by the U.S. Geological Survey National Water Quality Laboratory, 2001 The laboratory guide; a manual of practical chemistry for colleges and schools, specially arranged for agricultural students Arthur Herbert Church, 1888 **Utilization Management in the Clinical Laboratory and Other Ancillary Services** Kent Lewandrowski, Patrick M. Sluss, 2016-11-29 This book is the first comprehensive text on utilization management in the clinical laboratory and other ancillary services It provides a detailed overview on how to establish a successful utilization management program focusing on such issues as leadership governance informatics and application of utilization management tools The volume also describes ways to establish utilization management programs for multiple specialties including anatomic pathology and cytology hematology radiology clinical chemistry and genetic testing among other specialties Numerous examples of specific utilization management initiatives are also described that can be imported to other health care organizations A chapter on utilization management in Canada is also included Edited by an established national leader in utilization management *Utilization Management in the Clinical Laboratory and Other Ancillary Services* is a valuable resource for physicians pathologists laboratory directors hospital administrators and medical insurance professionals looking to implement a utilization management program **Catalog** Huron College (Huron, S.D.), 1912 **Finding List of Books & Pamphlets ...** Buffalo. Public Library, 1896

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