

BOARD OF SECONDARY EDUCATION OF RAJATAHAN, A JMER
SYLABUS SESSION 2023
SUBJECT - PRACTICAL CHEMISTRY
CLASS - 11

	अंक
A. Introduction	
B. Basic Laboratory Techniques	
C. Purification and Criteria of Purity	
D. Chemical Equilibrium (Ionic Equilibrium in Solution)	
E. pH and pH Change in Aqueous Solutions	
F. Titrimetric Analysis	06
G. Systematic Qualitative Analysis	06
H. Detection of Nitrogen, Sulphur and Halogens in an organic compound	03
I. Projects	03
J. Record	04
K. Viva	04

Total Marks **30**

A Introduction -

Do's and don'ts in a chemistry laboratory, Analytical methods, Basic laboratory equipment and procedures, Handling reagent bottles, Heating devices.

B Basic Laboratory Techniques -

Cutting of glass tube and glass rod, Bending of a glass tube, Drawing out a jet, Boring a cork, Heating solution in a test tube, Heating solution in a beaker or a flask, Filtration, Measuring volume of liquids, Weighing technique, Preparation of standard solution of Oxalic Acid.

C Purification and Criteria of Purity -

Purification of sample of a compound by crystallisation, Determination of melting point of a solid organic compound, Determination of boiling point of a liquid organic compound.

D Chemical Equilibrium (Ionic Equilibrium in Solution) -

Study of shift in equilibrium in the reaction of ferric ions and thiocyanate ions, Study of shift in equilibrium in the reaction between $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ and Cl^- ions

E pH and pH Change in Aqueous Solutions -

To determine the pH of some fruit juices, To observe the variation in pH of acid/base with dilution, To study the variation in pH by common ion effect in the case of weak acids and weak bases, To study the change in pH during the titration of a strong acid with a strong base by using universal indicator, To study the pH of solutions of sodium chloride, ferric chloride and sodium carbonate.

F Titrimetric Analysis -

Detection of end point, Requirement for a reaction in the titrimetric analysis, Acidimetry and alkalimetry, Indicators in acid base titration, Determination of the

06

04

concentration (strength) of a given sodium hydroxide solution by titrating it against a standard solution of oxalic acid. Preparation of standard solution of sodium carbonate, Determination of the strength of a given solution of dilute hydrochloric acid by titrating it against a standard solution of sodium carbonate.

G	Systematic Qualitative Analysis	06
	To detect one cation and one anion in the given salt....., Systematic analysis of anions, Systematic analysis of cations, Group Analysis - (I) Analysis of Group - Zero cation (II) Analysis of Group - I cation (III) Analysis of Group - II cation (IV) Analysis of Group - III cation (V) Analysis of Group - IV cation (VI) Analysis of Group - V cation (VII) Analysis of Group - VI cation	
H	Detection of nitrogen, sulphur and halogens in an organic compound.	03
I.	Project	03
	1. To test the contamination of water by bacteria by checking the sulphide ion concentration and find out the cause of contamination. 2. To study the methods of purification of water. 3. Testing the hardener, presence of iron, fluoride, chloride, etc. in drinking water obtained from different regions and a study of the cause of presence of these ions above permissible limits. 4. Investigation of the foaming capacity of different washing soaps and effect of addition of sodium carbonate on their foaming capacity. 5. Study of the acidity of different samples of tea leaves and reasons for the variation in colour of tea prepared from these leaves. 6. Study the rates of evaporation of different liquids. 7. Study the effect of acids and alkalies on the tensile strength of fibres. 8. Study of the acids and mineral contents of vegetables and fruits.	
	Record	04
	Viva	04