TDC Part III
Practical (Lab Work)

Department of Chemistry

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TOPIC:- SYNTHESIS AND ANALYSIS

INTRODUCTION

Inorganic compounds are generally formed by non-living natural processes or by laboratory preparation methods as they do not formed from living things. There are two important classes of inorganic compounds: Double salts and Coordination compounds.

A double salt is a substance that can be prepared by combining two different salts which crystallize together into a single substance but when dissolved in water, the double salt ionize into its constituent ions. Alums (isomorphous crystalline solids that are soluble in water) such as potash alum, chrome alum, ferric alum are the common examples of double salts.

Coordination or complex compounds can be prepared by a large number of transition metals in which the metal atom is bonded to neutral molecules or to negatively charged species (ligands). The ligands can donate electrons to the metal atoms to form a ligand-metal coordinate bond. When dissolved in water, the coordination compounds do not ionize into its constituent ions. Tetraamine cupric sulphate complex, nickel dimethylglyoxime complex and *cis* and *trans* potassium-dioxalato diaquo chromate complexes are the example of complex compounds.

OBJECTIVES

After completing this unit, you will understand;

- Basic understanding of inorganic compound synthesis.
- How to synthesize sodium ferrioxalate complex, tetraamine cupric sulphate complex, nickel dimethyl glyoximate complex and *cis* and *trans* potassium-bis (oxalate) diaquo chromate.
- How to prepare double salts such as ferric alum and chrome alum.