Schiff bases also termed as azomethine compounds known to form complexes with majority of metal ions. This may be due to the fact that these compounds contain lone pair of electrons on the nitrogen atom of >C=N-and the general electron donating character of the double bond. The stability of the complexes depends more on the basic strength of >C=N-. To be more precise, the ease with which >C=N-donates lone pair of electrons, more is the stability of metal complexes. Schiff bases and their metal complexes have innumerable applications in many fields like pharmacy, medicine, agriculture, industry, photography, catalysis, paints and pigments and polymer technology. In view of the above facts, the author has synthesised a new Schiff base derived from p-bromo acetophenone and tris-(hydroxy methyl) methyamine (PBAT) and carried out polarographic work on cadmium and lead in presence of the derived Schiff base. Various studies carried out in the present investigation are included in this dissertation.

The dissertation has been divided into three chapters.

Chapter I is divided into two sections. Section (i) deals with the literature survey on Schiff bases and their metal complexes. Section (ii) highlights the synthesis and characterisation of new Schiff bases (PBAT).

Chapter II includes three sections. Section (i) devoted to the principles of polarography. Section (ii) incorporates polarographic studies of cadmium-PBAT complexes. Section (iii) concerns about polarographic behaviour of lead in presence of the Schiff base.
Chapter III contains three sections. Section (i) describes various methods for the determination of stability constants of metal complexes undergoing reversible electrode reactions at d.m.e. Section (ii) incorporates the experimental results relating to the determination of stepwise formation constant of cadmium PBAT complexes. Section (iii) is devoted for the complexation studies of lead-PBAT system.

Finally, highlights of the work have been incorporated under separate heading 'CONCLUSIONS'.
