SUMMARY AND CONCLUSION

The present thesis comprises three chapters:

Chapter (I) includes an introduction about transition metal ions and their important role in life. Also this chapter includes a resume concerning Schiff bases and their necessary part in treatment of some diseases. A literature survey was fulfilled on Schiff base compounds and a literature survey on the previous studies on the spectrophotometric determination of zinc, copper, silver, vanadium and mercury. Also this chapter contains a literature survey on the different analytical studies of Schiff bases complexes, conductometric, potentiomeric, spectrophotometric and thermal studies.

Chapter (II) includes the experimental part, the materials, the preparation of Schiff bases under investigation and their complexes with some transition metal ions. It comprises also information about the instruments and measurements which were used for conductometric, potentiometric and spectrophotometric analyses.

Chapter (III) is divided into

Part(I) a-The first division includes the results of spectral studies of the prepared organic ligands, where the electronic absorption spectra were studied in different organic solvents to determine sites of absorbance for each ligand.

b-the second division includes the spectral behaviour of ligands in universal buffer solution of different pH values to determine their ionization constants.

c-The third division includes the IR spectra of the ligands under investigation and different functional groups are assigned.

d-The fourth division includes the H-NMR spectra for different types of hydrogens expected for I_{a-d} under study can be numerated, determined and correlated to the molecular structure of the ligands.

Part(II) contains the studies of the complexes in solution where three different points were discussed :

a-The conductometric titrations of metal ion with the ligand which was done to determine the stoichiometric ratio of the complexes formed.

b-The potentiometric titrations which studied and done by using 0.1 M HNO_3 and 1.0 M KCl. From the data obtained, the ionization constants of ligands and formation constants of the complexes formed were obtained.

c-The spectrophotometric studies of metal complexes where a study of the optimum conditions favoring the formation of Ag(I), Cu(II), Zn(II), V(V), and Hg(II) complexes in solutions with Schiff base reagents. Also Beer`s law and Ringbom ranges were determined and the effects of foreign ions on the complexes formed were studied.Also analytical applications on some samples such as waste water and sediment collected from the outer heat surfaces of boiler of Arish power plant, zinc anode (zinc alloy) and authentic solutions were performed for the determination of the metal ions under investigation.

Part(III) includes the studies of the solid chelates by using elemental analysis, molar conductance measurements, TG, DTA, IR, H-NMR and electronic absorption spectra in nujol mull and DMF to determine the structure of complexes and activation energies.