

CONTENTS

	PAGE
INTRODUCTION	1-24
PLAN OF WORK	25-28
CHAPTER I	29-50
LINEAR SWEEP VOLTAMMETRY UNDER HYDRODYNAMIC CONDITIONS.	
i) Formulation and solution of boundary value problem involved in linear sweep voltammetry, under hydrodynamic conditions.	
ii) Verification of solutions of convective diffusion equations involved in reversible, quasi-reversible and irreversible electrode processes.	
CHAPTER II	51-58
INSTRUMENTATION FOR LINEAR SWEEP VOLTAMMETRY	
Linear sweep generator, potential control amplifier circuit and current amplifier circuit, working of the instrument, cells and electrodes and performance of the instrument.	
CHAPTER III	59-62
EXPERIMENTAL PROCEDURES	
Electrode material, gravity feed control, cell assembly, measurement of velocity of solution, recording of current-potential curves.	
CHAPTER IV	63-67
EXPERIMENTAL VERIFICATION OF THEORETICAL RESULTS	
Current-potential curves for the oxidation of o-dianisidine, o-ethylaniline and hydroquinone, current-scan rate relationship, current-axial velocity relationship.	
CHAPTER V	68-109
LINEAR SWEEP VOLTAMMETRY OF SYSTEMS WITH COUPLED CHEMICAL REACTIONS (EC PROCESSES)	

Study of four different cases i.e. reversible charge transfer followed by reversible chemical reaction, irreversible charge transfer followed by reversible chemical reaction, irreversible charge transfer followed by catalytic chemical reaction, reversible charge transfer followed by irreversible chemical reaction and solution of convective diffusion equations under appropriate boundary conditions. Results and discussion. Experimental verification of theoretically derived results by carrying out the oxidation of N, N'-dimethyl-p-phenylenediamine.

CHAPTER VI LINEAR SWEEP VOLTAMMETRY 110-128
UNDER HYDRODYNAMIC
CONDITIONS. (CE PROCESSES)

Formulation of the problems and solution under initial and boundary conditions for two cases. i.e. reversible chemical reaction is followed by reversible or irreversible charge transfer. Results and discussion.

CHAPTER VII LINEAR SWEEP VOLTAMMETRY 129-171
OF SYSTEMS WITH CHEMICAL
REACTION COUPLED BETWEEN
TWO CHARGES TRANSFERS.
(ECE PROCESSES)

Study of four fundamental cases i.e. both charge transfer reactions reversible, first charge transfer reaction reversible and second charge transfer reaction irreversible, first charge transfer reaction irreversible and second charge transfer reaction reversible, both charge transfer reactions irreversible. Formulation of the problem and solution of resulting convective diffusion equations under appropriate boundary conditions. Experimental verification of theoretically derived results by carrying out the reduction of p-nitrosophenol on mercury plated electrode.

SUMMARY 172-176

REFERENCES 177-18