

## CONTENTS

	Page No.
Preface of the thesis	1 - 4
List of Six Published and One communicated papers	5
Chapter-1	6 - 19
General introduction and a brief review of previous works	
1.1 Introduction	
1.2 Dielectric Dispersion	
1.3 Dielectric Susceptibility	
1.4 Representation of Permittivity in a complex plane	
1.5 Double relaxation due to rotation of the flexible polar groups and rotation of the whole molecule	
1.6 High frequency conductivity	
1.7 Estimation of Relaxation Time $\tau_j$ by high frequency Conductivity	
1.8 Estimation of dipole moment $\mu_s$ of a Polar solute from Debye equation under low frequency or static electric field	
1.9 Gopala Krishna's method to estimate $\tau$ and $\mu$	
1.10 A brief review of previous works	
Chapter-2	20 - 33
Scope and objective of present works	
2.1 Introduction	
2.2 Theoretical formulations to estimate hf $\tau_j$ and hf $\mu_j$	
2.3 Double relaxation times $\tau_1$ , $\tau_2$ and dipole moments $\mu_1$ , $\mu_2$ due to rotations of the flexible polar groups & rotations of the whole molecule	
2.4 Formulations to estimate symmetric and characteristic relaxation times $\tau_s$ & $\tau_{cs}$	
2.5 Static experimental parameters $X_{ij}$ and static dipole moments $\mu_s$	
2.6 Theoretical formulations to estimate thermodynamic energy parameters	
Chapter-3	34 - 50
Structural aspects and physico chemical properties of some aromatic Polar nitro compounds in solvent benzene at different temperatures under giga hertz electric field	
Chapter-4	51 - 76
Dielectric relaxation phenomena of some aprotic polar liquids under giga hertz electric field	
Chapter-5	77 - 97
The physico chemical aspects of some long straight chain alcohols from susceptibility measurement under a 24 GHz electric field at 25°C	

	Page No.
Chapter-6 Studies on physico chemical properties with the relaxation phenomena of some normal aliphatic alcohols in non polar solvent under giga hertz electric field at a single temperature	98 - 119
Chapter-7 Dielectric relaxation of aromatic para substituted derivative polar liquids from dispersion and absorption phenomena under GHz electric field	120 - 145
Chapter-8 Structural aspects and physico chemical properties of Polysubstituted benzenes in benzene from relaxation studies	146 - 160
Chapter-9 The structural aspects and physico chemical properties of binary polar liquids in non polar solvent under a giga hertz electric field	161 - 180
Chapter-10 Summary and conclusion of the thesis works	181 - 189
Reprints of Published Papers	