

C O N T E N T S

CHAPTER -I

<u>I N T R O D U C T I O N</u>	...	1-36
1.1 General Introduction	...	1
1.2 Historical Introduction	...	4
1.2.1 General aspects of Electroluminescence (EL.)		
a) Preparation of EL. material	...	4
b) Construction of EL. Cell	...	5
c) Measurement of EL. Intensity	...	8
d) Factors affecting EL. emission		
i) Voltage dependence	...	9
ii) Frequency dependence	...	13
iii) Time of operation of EL.cell	...	16
iv) Temperature dependence	...	17
v) Effect of Magnetic field	...	20
vi) Effect of Incident radiation	...	21
1.2.2 Mechanism of Electroluminescence		
I) Glow discharge	...	23
II) Field ionization	...	24
III) Impact ionization	...	26
iv) Injection of charge carrier	...	27
v) Radiative recombination	...	28
1.3 Applications of Electroluminescence	...	32

CHAPTER - II

	<u>E X P E R I M E N T A L</u>	...	37-46
2.1	Purification of 8- hydroxyquinoline	...	37
2.2	Preparation of metal -oxinates	...	38
a)	Magnesium oxinate	...	39
b)	Calcium oxinate	...	40
c)	Zinc oxinate	...	40
d)	Cadmium oxinate	...	40
e)	Aluminium oxinate	...	40
2.3	Study of electro-optical properties		
a)	Electroluminescent cell	...	41
b)	Excitation unit	...	44
c)	Dispersion unit	...	44
d)	Intensity measuring unit	...	46

CHAPTER - III

ELECTROLUMINESCENCE SPECTRA AND MECHANISM

	<u>OF ELECTROLUMINESCENCE.</u>	...	47-67
3.1	Results	...	47
3.2	Discussion	...	59
3.3	Mechanism of electroluminescence.	...	64

CHAPTER - IV

VOLTAGE AND FREQUENCY DEPENDENCE OF
ELECTROLUMINESCENCE EMISSION. ... 68-110

4.1	I) Voltage dependence of EL.emission ...	69
	II) Frequency dependence of EL.emission ..	103
4.2	Luminous efficiency	... 106

CHAPTER - V

S U M M A R Y ... 111-116

R E F E R E N C E S ... 117-129