

## CONTENTS

<b>Chapter No.</b>	<b>Title</b>	<b>Page No.</b>
	Declaration	I
	Certificate	II
	Acknowledgment	III
	Preface	IV
<b>Chapter I</b>	<b>INTRODUCTION TO PYROCHLORES</b>	<b>[1 -26 ]</b>
	1.1 Introduction	2
	1.2 Structure of the Pyrochlore	4
	1.3 Structure and stability	13
	1.4 $A_2^{3+}B_2^{4+}O_7$ (3 + 4 +) Pyrochlores	17
	1.5 Applications of Oxide Pyrochlores	20
	1.6 Orientation of the problem	22
	<b>References</b>	<b>24</b>
<b>Chapter II</b>	<b>PREPARATION AND CHARACTERIZATION OF PYROCHLORES</b>	<b>[27 -52]</b>
	2.1 Introduction	28
	2.2 Preparation of Pyrochlores	28

2.2.1	Ceramic Method	29
2.2.2	Presintering	29
2.2.3	Milling after Presintening	31
2.2.4	Final Sintering	31
2.3	Grain growth	34
2.4	Porosity	35
2.5	Actual method of preparation of Pyrochlore Samples	35
2.6.1	Pellet formation	36
2.6.2	Final Sintering	37
2.7	X-ray Diffractometer	37
2.7.1	Principle of diffractometer	38
2.7.2	Experimental	41
2.8	Results and disussion	41
	<b>References</b>	52

<b>Chapter III</b>	<b>ELECTRICAL PROPERTIES</b>	<b>[53 -76]</b>
3.1	Introduction	54
3.2	D.C. Conductivity	54
3.3	Thermoelectric Power	57
3.4	Experimental	58
3.5	Results and discussion	63
	<b>References</b>	76

<b>Chapter IV</b>	<b>DIELECTRIC PROPERTIES</b>	<b>[77 - 106]</b>
4.1	Introduction	78
4.2	Polarization and dielectric constant	79
4.3	Experimental	82
4.4	Results and discussion	
	Dielectric constant with frequency	83
	Dielectric constant with temperature	98
	<b>References</b>	<b>106</b>
<b>Chapter V</b>	<b>SUMMARY AND CONCLUSIONS</b>	<b>[107 - 111 ]</b>
	<b>References</b>	<b>111</b>