<table>
<thead>
<tr>
<th>Sl. No</th>
<th>CONTENTS</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CHAPTER – 1 Introductions and Review of Literature</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>CHAPTER – 2 Experimental Techniques</td>
<td>52</td>
</tr>
</tbody>
</table>
| 3     | CHAPTER – 3 Alkali metal salt based solid, gel and composite polymer electrolytes  
Part A - Evaluating the performance of solid and gel polymer electrolytes for lithium ion cell  
Part B - Studies on the effect of dispersoid (ZrO₂) in PVdF-co-HFP based gel polymer electrolytes | 79       |
| 4     | CHAPTER – 4 Triethylsulfoniumbis (trifluoromethylsulfonyl) imide (SEt3TFSI) based ionic liquid polymer electrolytes  
Part A - Sulfonium cation based ionic liquid incorporated polymer electrolyte for lithium ion battery  
Part B - A probe of optimization of triethylsulfoniumbis (trifluoromethylsulfonyl) imide gel polymer electrolyte for lithium battery applications  
Part C - Effect of dispersoid on sulfonium ionic liquid based gel polymer electrolyte for lithium secondary battery | 98       |
| 5     | CHAPTER – V Trihexyltetradecylphosphoniumbis(trifluoromethylsulfonyl) amide [P₁₄₆₆₆₆][Tf₂N] based ionic liquid polymer electrolytes  
Part A - Physical and electrochemical property of phosphonium ionic liquid based solid and gel polymer electrolyte for lithium secondary batteries  
Part B - Role of inorganic fillers in the polymer electrolyte incorporated with phosphonium ionic liquid for lithium ion battery application | 167      |
| 6     | CHAPTER – VI Summary and Conclusion                                       | 212      |

LIST OF PUBLICATIONS
Perceptible output based on this research work