# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>CHAPTER NO.</th>
<th>TITLE</th>
<th>PAGE NO.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ABSTRACT</td>
<td>iii</td>
</tr>
<tr>
<td></td>
<td>LIST OF TABLES</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>LIST OF FIGURES</td>
<td>xi</td>
</tr>
<tr>
<td></td>
<td>LIST OF ABBREVIATIONS</td>
<td>xiii</td>
</tr>
<tr>
<td>1</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.1</td>
<td>Grid Computing Fundamentals</td>
<td>1</td>
</tr>
<tr>
<td>1.2</td>
<td>Role of Grid Computing</td>
<td>3</td>
</tr>
<tr>
<td>1.3</td>
<td>Types of Grid Resources</td>
<td>9</td>
</tr>
<tr>
<td>1.4</td>
<td>Intra Grid and Inter Grid</td>
<td>14</td>
</tr>
<tr>
<td>1.5</td>
<td>Grid Services</td>
<td>16</td>
</tr>
<tr>
<td>1.6</td>
<td>Grid Security</td>
<td>17</td>
</tr>
<tr>
<td>1.7</td>
<td>Grid Services vs. Web services</td>
<td>21</td>
</tr>
<tr>
<td>1.8</td>
<td>Grid Availability Resources</td>
<td>21</td>
</tr>
<tr>
<td>1.9</td>
<td>Grid Scalable and Dynamic Access Control Mechanism</td>
<td>22</td>
</tr>
<tr>
<td>1.10</td>
<td>Grid Certificate Authority and E-Grid</td>
<td>29</td>
</tr>
<tr>
<td>1.11</td>
<td>Research Objectives</td>
<td>33</td>
</tr>
<tr>
<td>1.12</td>
<td>Thesis Organization</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>35</td>
</tr>
<tr>
<td>2</td>
<td>LITERATURE REVIEW</td>
<td>36</td>
</tr>
<tr>
<td>2.1</td>
<td>Research Evolution in Grid Computing</td>
<td>37</td>
</tr>
<tr>
<td>2.2</td>
<td>Grid Computing Developments During 2010-2017</td>
<td>52</td>
</tr>
<tr>
<td>2.3</td>
<td>Recent Grid Computing Implementation in 2018</td>
<td>55</td>
</tr>
<tr>
<td>2.4</td>
<td>Current Grid Computing Market in 2019</td>
<td>61</td>
</tr>
<tr>
<td>2.5</td>
<td>Research Gap Identified</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>Summary</td>
<td>66</td>
</tr>
<tr>
<td>3</td>
<td>ENHANCEMENT OF SCALABLE ACCESS CONTROL MECHANISM IN GRID COMPUTING</td>
<td>67</td>
</tr>
<tr>
<td>3.1</td>
<td>Introduction</td>
<td>67</td>
</tr>
<tr>
<td>3.2</td>
<td>Methodology</td>
<td>69</td>
</tr>
<tr>
<td>3.3</td>
<td>Proposed Enhancement Schema</td>
<td>70</td>
</tr>
</tbody>
</table>
3.4  Result and Discussion
  Summary

4  OPTIMIZATION OF DYNAMIC ACCESS CONTROL MECHANISM IN GRID COMPUTING
  4.1 Introduction
  4.2 Methodology
  4.3 Proposed Optimization Schema
  4.4 Result and Discussion
  Summary

5  UNIFICATION OF SCALABLE AND DYNAMIC ACCESS CONTROL MECHANISM IN GRID COMPUTING
  5.1 Introduction
  5.2 Methodology
  5.3 Proposed Unification Schema
  5.4 Result and Discussion
  Summary

6  RESULTS AND DISCUSSION
  6.1 Performance Study of Grid Computing
  6.2 Objective-1: Enhancement of Administrative Scalability
  6.3 Objective-2: Dynamic Access Control Optimization
  6.4 Objective-3: Unified Scalable and Dynamic Access Control
  Summary

7  CONCLUSION AND FUTURE WORK
  7.1 Conclusion
  7.2 Contributions
  7.3 Future work

REFERENCES
LIST OF PUBLICATIONS
REPRINT OF PUBLICATIONS
BIO DATA