

Acknowledgement

First and foremost, I would like to pay high regards to the God, who gave me some intellect and wisdom to reach where I am today.

*I express the most profound feeling of gratitude towards my Guide, **Dr. Jaita Sharma**, Assistant Professor, Department of Applied Mathematics, Faculty of Technology and Engineering, The M. S. University of Baroda, who has supported me throughout this period. Apart from the subject of my research, I learned a lot from her, which will surely help me in different stages of my life. I solemnly submit my honest and humble thanks to her for bringing my dreams into reality.*

*It gives me immense pleasure to express my heartiest thanks to my husband **Mr. Kaushik Suthar**, who has always been remained a backbone in every up and down in my life.*

*I will forever be thankful to my Guruji **Dr. G. M. Deheri**. He always remains my ideal as a researcher, mentor, teacher and a good human being. I still think fondly of my time as an M.Phil student. He is the reason why I decided to go to pursue a career in research. His support and advice are pillars of strength in this work and at every stage of my life.*

*I am deeply thankful to **Dr. Bankim Shah**, Head, Department of Applied Mathematics, Faculty of Technology and Engineering, The M. S. University of Baroda, for his support and needful help during the various stages of my research work.*

*I offer my thanks to **Prof. C. N. Murthy**, Dean, Faculty of Technology and Engineering, The M. S. University of Baroda, for providing all the necessary facilities to me. I am also obliged to **Prof. Arun Pratap**, Former Dean, Faculty of Technology and Engineering, The M. S. University of Baroda.*

*I am grateful to **The Maharaja Sayajirao University of Baroda**, for providing me financial assistance in the form of a University Research Scholarship.*

*My heartiest gratitude towards **Dr. Dishant Pandya**, Pandit Deendayal Petroleum*

University (PDPU), Gandhinagar. He patiently provides the encouragement, advice and help which is necessary for me to proceed through the doctoral program and complete my thesis. Still, words are insufficient to express my gratitude towards him.

*I express my deepest gratitude to my Father-in-law **Mr. Madhavlal Suthar** for their co-operation, enduring patience, unconditional support and encouragement. His endless efforts have made a great contribution to achieving this level.*

My heartfelt thanks to the most loving and caring grandmother, who constantly prays for me.

*My sincere gratitude is to **Dr. Bharat Ratanpal, Mr. Vishant Shah, Ms. Tejal Shah and Mr. Bhavesh Suthar** for their help and support in the writing of the thesis.*

I am also thankful to all department faculty members, staff members and my research colleagues for their direct and indirect support.

*I also thankful to my friends **Ms. Sonal Dave, Ms. Kamini Vyas and Ms. Madhuri Wardey** for giving me moral support during this period and also at every stage of my life.*

*I am also thankful to **Ms. Anjana Suthar, Ms. Alpaba Gohil and Mr. Rameshbhai Patel** for their direct and indirect support.*

Last but not least, I would like to thank anyone I may have forgotten.

Mittal K. Patel