Dedicated to my parents, my sister and my wife, who put endless efforts in bringing me up to be what I am today.
Acknowledgements

The process of outcome of this thesis has been long but rewarding. Many individuals and institutions have offered their support along the way, making it possible, visible and consequent. Certain that I will be forever in debt to them!

I owe a debt of gratitude to Dr. P M George. He has been an excellent advisor, providing technical guidance and offering an outstanding example of professional conduct. I am also thankful for his personal encouragement, sincere support, and friendly nature along the path. I would like to thank Dr. Anurag Verma, former principal of G H Patel Institute of Engineering and Technology (GCET), as my initial guide during his stay at GCET; he has given valuable help for preliminary phase of my research work. I am also grateful to Dr. R K Jain, Principal, A D Patel Institute of Technology (ADIT) for providing opportunity to pursue this research work.

I am grateful to Dr. Kausal Desai, Dr. Mitesh Shah and Dr. D A Jani as my colleague of the department and their participation in many helpful discussion, cooperation and constant motivation. Furthermore, I want to thank Dr. Vishal Singh, Head of Mechanical Engineering department of ADIT for his indirect support during my research work.

Next, I would like to thank Prof. Mukesh Shimpi for sharing his ideas with me and approach in conceptual understanding of mathematical problem. I would also like to express my sincere gratitude to Prof. S P Joshi, Prof. Vinay Patel, Dr. H P Patolia and Prof. P M Agrawal of B V M Engineering College for their continuous guidance and support during this research.

I sincerely thanks to Dr. Bhanuben Patel for her constant encouragement for pursuing this work.
I would like to thank my wife for being a faithful friend, for better or for worse, in good and bad times. I would like to thank my parents and my sisters for their love, sacrifice, patience and for giving me the privilege of higher study.

A genuine thank to all the researchers that have chosen to share the results of their research on-line.

Lastly, I want to thank God for giving me the wisdom, care, love and his abundant blessings without which this work would not be possible.