**ACKNOWLEDGEMENT**

In the beginning, I would like to thank the almighty **GOD** who has always been very generous and kind to me.

This thesis is the end of my journey in obtaining my PhD degree. I have not travelled in a vacuum in this journey. This thesis has been kept on track and seen through to completion with the support and encouragement of numerous people including my well wishers, my friends & colleagues. Submission of thesis is indeed a very special occasion for me to express my sincere regards and heartfelt appreciation to all those who contributed in many ways to the success of this study and who made possible this thesis a reality.

First and foremost, I am overwhelmingly and everlastingly grateful to my esteemed guide and guru, **Dr. Mallika Sanyal**, Associate Professor, Department of Chemistry, St. Xavier’s College Navrangpura, Ahmedabad and **Dr Pranav S. Shrivastav**, Associate Professor, Department of Chemistry, School of Sciences, Ahmedabad for their valuable guidance, positive approach, inspiration, patience and enduring leniency throughout the course of my work, providing a major momentum which has successfully led me to the completion of this work. This feat was possible only because of the unconditional support provided by them. Ma’am, a person with an amicable and positive disposition, has always made herself available to clarify my doubts despite her busy schedules and I consider it as a great opportunity to do my doctoral programme under her guidance and to learn from her research expertise. Thank you Ma’am for all your help and support. Her unflinching courage and conviction will always inspire me, and I hope to continue to work with her noble thoughts. It has been my privilege to work under her supervision for her constant encouragement and constructive criticism.

I wish to accord my gratitude to **Dr. Mitesh H. Patel**, for his invaluable suggestions, concern and help. The Administrative staff of **Kadi Sarva Vishwavidyalaya, Gandhinagar**, deserve a special mention for their kind cooperation and concern for the future of students.

It’s my fortune to gratefully acknowledge the support of some special individuals. I am very much indebted to **Vinod Kuriakose** for his valuable suggestions, unconditional support and motivation. I am immensely grateful to my colleagues **Punit Padhani** and **Gulshan Kheskani** for their tremendous generosity and support throughout my research work.

I would like to acknowledge all my colleagues of Navratna Enterprise, Ahmedabad, India for their whole-hearted support, providing a stimulating and fun filled environment and for their sense of humor in time of difficulty during entire period of PhD work. In addition, I would like to say thanks to **all** who have always lent a helpful hand and made this phase of my life memorable.
Words fall short to express my profound gratitude to my **Mom** and **Dad** who have been the pillars of strength and role models of my life in showing me the path of perseverance. With enormous pleasure, I express my thanks to my wife **Pooja** for her unconditional support and motivation during the entire course of my PhD work. I take this opportunity to express my gratitude to my **Sister Dhara**, **brother-in-law Anurag** and other family members from the bottom of my heart for their selfless encouragement and help in the hour of need.

Patel Jigar Ravjibhai