Acknowledgement

The work described in this thesis has been carried out under the supervision of Dr. Nayanmoni Gogoi at Department of Chemical Sciences, Tezpur University. My sincere thanks to my research supervisor for his patient guidance, motivations and fruitful discussions throughout the course of this work. It was a great privilege and honor to work under his guidance.

I would like to express my sincere gratitude to my Doctoral Committee members, Prof. Swapan K. Dolui and Prof. Nashreen S. Islam for their constant inspiration and support throughout this period.

I would like to thank Prof. Ashim J. Thakur, Head, Department of Chemical Sciences, Tezpur University for giving me an opportunity to work in this institute and making the facilities available for carrying out research.

I am very grateful to Dr. Bipul Sarma for his valuable contribution in my work and I specially thank him for his help and suggestions during my Ph.D.

I am very much thankful to all the faculty members of Department of Chemical Sciences, Tezpur University for their innovative advices, suggestions and encouragements.

I would like to acknowledge all the teachers I learnt from since my childhood, I would not have been here without their guidance, blessing and support.

I am pleased to acknowledge the financial support from Tezpur University and Council of Scientific and Industrial Research (CSIR), New Delhi. I sincerely thank Sophisticated Analytical Instrumentation Centre (SAIC), Tezpur University for providing spectroscopic and analytical facilities. I would also like to acknowledge UGC DAE CSR-Indore and Kolkata Centres, for availing the SQUID facility for magnetization measurements of my work.

I thank all the non-teaching staffs of Department of Chemical Sciences, Tezpur University for their great help and support.

My heartfelt thanks to my fellow labmates Suchibrata Borah, Prashurya Pritam Mudoi, Bagmita Bhattacharyya and Anup Choudhury for their cooperation and help throughout this period. I also thank Champak Dutta, Anuran Goswami, Upakul Dutta, Bhrigu Phukan Das, Gorishmita Borah, Bikash Das, Abhishek Borborah, Pinky Gogoi, Arup Kr. Dutta, Rupa Pegu, Sandhya Rani Gogoi, Gangutri Saikia, Kabirun Ahmed, Susmita Saikia, Kabita Boruah, Mukesh Sarma, Mitu Sharma and Biraj Das for rendering their help, support and motivation during this work. My sincere thanks are extended to all my friends, seniors and juniors from Department of Chemical Sciences, Tezpur University who has made my journey much joyful with their company.

A special thanks to Mrs. Zumi Gogoi for her concern and motivation throughout my Ph.D life. Her advices have been of great help throughout this period.

It is a pleasure to thank my beloved friends Saritha Suvarna and Yarana group for their well wishes, inspiration and faith on me throughout my life. I am blessed to have their presence in my life.

Finally, I would like to acknowledge the people who mean the world to me, my parents Mr. Babul Dey and Mrs. Meena Dey. I also thank my adorable sister Munmun, for her endless love and support during all these years. I am very thankful to them for their unconditional love, inspiration and all the sacrifices that they have made. A special thanks to my husband, Ranjan Sarmah, for his continued love and believe in me. His eternal support and understanding drove me this far. I am very thankful to my father-inlaw, mother-in-law, Anjan, Ranjita Devi, Prashanta Sarmah and our cute nephew, Gavakshya for their love and support in completing this work.

I thank the Almighty for giving me the strength and patience to work through all these years.

Sincerely,

Tezpur University Date: Mamon Dey