Acknowledgement

This thesis is an outcome of a long journey which would not have been possible without the support, blessings, encouragement and love of many people who have been directly or indirectly involved with me. Most importantly, it is a journey beyond words. But, to put it into words, I would begin with my supervisor Dr. Dambarudhar Mohanta and express my sincere gratitude for his guidance, suggestions, motivation throughout in carrying out the research work. I am highly indebted to Prof. Ashok Kumar and Prof. S.K. Ray, Doctoral Research Committee members for their valuable suggestions and advice all throughout. I am extremely indebted to the Vice-Chancellor, Tezpur University for giving me an opportunity to pursue Ph.D in this University.

My ample appreciation goes to Scientific Officer, Dr. Kishore Baruah and all the technical staff for arranging experimental set-ups throughout the exercise. I acknowledge SAIC-TU and Department of Physics for extending SEM and UV-Vis facilities. I am thankful to Prof. Nilakshi Das, Head of the Department of Physics and all the faculty members for their inspiration which motivated me in carrying out the work. I am also thankful to the non-teaching staff Narayan da and Patir da for their official assistance.

I am fortunate enough to have wonderful seniors and juniors as my lab-mates: Saurabh da, Nibedita ba, Manjit da, Runjun ba, Samiran da, Rizwin ba, Amrita, Aftab and Hemanga. My special thanks go to Saurabh da for his healthy suggestions and help throughout. I am blessed to have a wonderful group of friends/well-wishers: Munu ba, Gudu, Sudar, Happy, Archu, Pratikshya, Prarthana, Lakhi ba, Violina, Nilu da, Madhurjya, Pragyan, Rituraj, Madhabi, Bhagya, Devoleena, Pubali, Dhanashri, Ankur, Rajkumar, Priyanka, Papari, Pranamika, Disha, Devoleena to name a few. Thank you all for your support and good wishes in times of need and always.

Last but not the least; I am thankful to Ma and Deuta, my younger sister Annesha (Puku), Suna, my grandparents, Okonman khura, Jiban Khura and all my family members who have been a great source of support, strength and love. Without their support and blessings, it would not have been possible in carrying out the work smoothly. Finally, I express my sincere gratitude to DST-SERB (EMR/016/0008045) and Tezpur University for the financial grant and also providing me the golden opportunity to fulfil my dream.

And, above all, I thank the Almighty for being kind enough and for His blessings at every point of time.

Swati N Aideo