## ACKNOWLEDGEMENT

Thanks to the ALMIGHTY GOD for giving me such a tremendous strength to complete this work and for His protection during this work. His blessings and glory flourished my thoughts and thrived my ambitions. I have the only pearls of my eyes to admire the blessings of the Compassionate because the words are bound, knowledge is limited and time is short to express the dignity.

Words are inadequate to express my heartiest obligation and gratitude to my respected teacher and supervisor, Dr. Mahendra Nath Roy, Professor, Department of Chemistry, University of North Bengal, Darjeeling, India. Throughout my research period, I have received constant guidance, valuable suggestions, inspiration and constructive criticism from him. I am deeply indebted to him for his keen interest, strong motivation, constant encouragement and sympathetic consideration. The trust, support and 'the freedom to create' that he has provided throughout the work is very much appreciated. Without his loving care, dependable guidance, and precious supervision, it would have been impossible for me to bring the present contour to this thesis. Eventually, it's my fortune to have him as my guide.

I would like to extend my appreciation to the honourable Head and all the faculty members, Department of Chemistry, University of North Bengal for their precious assistance and continuous inspiration during the course of my research. I am grateful to the University authority for providing laboratory facilities, especially University Scientific Instrumentation Centre, University of North Bengal for helping me in my research.

No word is enough to pay my sincere gratitude to my father Sri Kanteswar Ray and mother Smt. Suniti Ray, my elder brother Mr. Tanmay Ray and sister in law Dr. Aparna Ray for their constant prayers, encouragement and contributions to my carrier building and whose inspiration went a long way to the completion of this thesis and lifting me uphill to this phase of life. I owe everything to them. I would like to acknowledge my beloved husband, Dr. Abhijit Barman for his whole-hearted cooperation and constant unconditional support and encouragement associated with my research work. My special thanks go to Dr. Deepak Ekka, Mr. Milan Chandra Roy, Mr. Kanak Ray, Mr. Biswajit Datta, Mr. Subhodeep Saha, Miss Siti Barman and all of my research laboratory staff for their valuable assistance and cooperation during my research work.

I am also grateful to my Institutional Head and all of my colleagues for their support for pursuing my research work.

I am constantly aware of what a huge debt I owe to the sources of the information required for my research work: the numerous books, monographs, articles, computer website, etc. I put on record some measure of my gratitude to those whose references I have cited in this thesis.

Finally, I would also like to record my thankfulness to the "Rajiv Gandhi National Fellowship (Regn ID: RGNF-2013-14-SC-WES-52926)" and financial assistance in order to continue this research work. I am also thankful to the Departmental Special Assistance Scheme under the University Grants Commission, New Delhi (No. F 540 / 27 / DRS / 2007, SAP-1). I am happy to mention that my supervisor, Prof. M. N. Roy received an award as 'ONE TIME GRANT' Ref No. F.4-10/2010(BSR) of Rs. seven lakh from UGC, New Delhi, under Basic Scientific Research (BSR) for augmenting of research facilities to further facilitate in research work and my Ph. D. Work has been augmented by this grant.

TANUSREE RAY Research Scholar Department of Chemistry University of North Bengal Darjeeling: 734013, WB,