ACKNOWLEDGEMENT

This thesis is the outcome of several years of research and strenuous work which were intensified over the last three years. Its successful completion is not only a scientific accomplishment, but also an achievement of Tagore University (Visva-Bharati) where the entire work has been done. It can be viewed as an illustration of an antique proverb which states, “More logs make a bigger fire”. Among the many people who have contributed to my research work, I am particularly indebted to the following ones:

First of all, I wish to extend my sincere regards and gratitude to my supervisors Prof. (Rtd.) Indranarayan Basumallick and Dr. Susanta Ghosh for his invaluable supervision and constant encouragement, throughout this research work. I am extremely grateful to them for all the useful discussions, constant clarifications and constructive scientific contribution to this thesis. Whenever there were problems, they gave a positive impulse when it was needed most. This work could not have been successfully completed without his effective and meaningful contribution at every step.

I am deeply indebted to Prof. Pranesh Choudhury, Head of the Chemistry Department and Prof. A. K. Das, distinguished senior professor, Department of Chemistry, Visva-Bharati for their valuable advices, suggestions and encouragements.

I am expressing my deepest appreciation and thanks to Dr. Bidyut Saha, Department of Chemistry, Burdwan University and Dr. Motin Sk., Department of Chemistry, Visva-Bharati for their kind suggestions and advices to do research in this laboratory.

I acknowledge Dr. Sudip Kr. Mandal for his helpful suggestion and fruitful scientific discussions.

I also owe to all the faculty members and staff of this Department for their altruistic teaching and helping. I am also thankful to the Department of Chemistry, Visva-Bharati University, for providing such wonderful facilities during my entire research work.

I wish to acknowledge Department of Physics, Visva-Bharati for Powder XRD and IIT Kharagpur, WB for TEM-EDX facilities.
I do not have enough words to acknowledge the support from my present research colleagues Mr. Bikash Mandal, Ms. Debalina Das, Mr. Basu Maan Das and past labmates Dr. Moijtree chatterjee, Dr. Bharat Chandra Dalui, Dr. Someswar Chatterjee for their limitless support, inspiration, co-operative attitude and the conductive atmosphere they provided with me in the laboratory.

I would like to give my heartfelt thanks specially to Mr. Niharul Alam, Mr. Monoranjan Ghosh, Mr. Shyama Prasad Bayen, Mr. Pijush Malpaharia, Mr. Koushik Ghosh, Mr. Milan Kr. Barman, Mr. Subhanjan Mitra and other research scholars of this department, Visva-Bharati University for their support and constant help.

It gives me immense pleasure to thank my friend Mr. Anustup Sadhu for his kind help during my research work.

I shall be failing in my duty if I do not mention about the relentless contribution of my parents and elder sisters who encouraged me to pursue my higher studies. I do not have words to express my immense gratitude to them for their support, encouragement and love. They always treated me sincerely with open mind. I could never thank them sufficiently.

Finally, I thank, GOD the Almighty, who blesses me with strength and patience to enable me to reach my goal.

October, 2015
Department of Chemistry
Visva-Bharati
Santiniketan-731235
West Bengal, India

Pradip Kr. Ghosh
(PRADIP KR. GHOSH)