ACKNOWLEDGEMENT

It was one of the most challenging at the same time exhilarating academic tenure to prepare the work behind this thesis. The years spent during this tenure were quite full of anxiety, stress but at the same time satisfying with a continuous achievement of targets. Each day of these years brought up new lessons to surpass illusions, overcoming difficulties, improving thought and at the end of the journey a lot of experience which makes the basement of my research career. I would like to thank some beautiful people I met on the way, though all of them deserve special mention.

First of all, I would like to express my deep sense of gratitude and regards to my supervisor Dr. Debasis Das for giving me the opportunity to join his group and to introduce me to the fascinating world of inorganic chemistry. He always encouraged and supported me and provided plenty of space for discussion which often solved tough problems at ease. I am very much thankful to him for the time he shared as a research guide, a teacher and a friend.

I am very much grateful to our collaborators Dr. M. Nethaji, Dr. E. Suresh and Prof. E. Zangrando for crystallographic data collection and illustration of the structures. I also thank Dr. Tapan Kumar Mondal, Department of Chemistry, Jadavpur University, Kolkata; Prof. Somenath Roy, Department of Human Physiology with Community Health, Vidyasagar University, Midnapur; Dr. Santanu Bhattacharya, Department of Chemistry, M.M.C. College, Kolkata for their regular help in my research work.

I am fortunate to get good company of Dr. Tanmay Chattopadhaya, Dr. Sabnam Banu, Dr. Arpita Banerjee, Dr. Averi Guha, Dr. Monami Ghosh, Madhuparna Mukherjee, Sandip Mondal, Pali (unfortunately whom we lost during
my research work), Sudhanshu, Prateeti, Jaydeep, Ria, Priyanka, Suranjana and Ishani as labmates. Mention must be made of other research scholars who helped me very much.

I gratefully acknowledge the warm friendship and constant cooperation of all the scholars of Department of Chemistry and CURS hostel and also Sourav, Sandeep, Debasis Da, Subhankari Da, Sabyasachi, Satyajit and Balaram from Department of Human Physiology with Community Health, Vidyasagar University, Midnapur for their regular help in my research work.

I warmly acknowledge some school friends Akshay, Deba, Nayan, Deben, Sekhar, Sukhamoy, Piklu, Sana, Chandan, Sukumar and Suman who are always with me for their help and continuous inspiration in my research work.

I am very much thankful to my school teachers specially Mrs. Sweta Saw, Sri Ratan Chandra Maity for showing me the right path throughout my life. I spent my heavenly five years at Kharagpur College and Midnapur College, where I have done both my B.Sc and M.Sc degrees respectively. I am very much thankful to all the teachers for growing in me an urge to become a good human being.

Of course the most important persons of my life my parents, in-laws and my brother and sister deserve special mention for their unconditional love, sacrifice and dedication forming the platform of my life. I find the best person in my father whose entire life is another part of my research which always inspires me.

I am also indebted to my beloved wife Manasi, for the unconditional love, sacrifice and constant moral support and that I have received from her throughout the course of this work. No words are enough to acknowledge all these people.

Financial assistance received from the University Grants Commission (New Delhi), India is gratefully acknowledged. Grant received from UGC funded Major project, F. No. 34-308 / 2008 (SR) dated 31-12-2008 is also acknowledged. Thanks are also due to the Centre of Research in Nanoscience and Nanotechnology,
I am also grateful to CAS Instrumental Facility, Department of Chemistry, University of Calcutta for spectral data.

I wish to thank CSIR, New Delhi [CSIR project No. 01(2464)/11/EMR-II dated 16-05-2011] for financial support. I also thank Department of Science and Technology (DST), New Delhi, for providing single crystal diffractometer facility at the Department of Chemistry, University of Calcutta, through DST-FIST program.

Finally, I express my due respect to all the faculty members of the Department of Chemistry, University of Calcutta for the academic help. The staffs are also acknowledged for technical cooperation during my working period.

(TOTAN GHOSH)
Department of Chemistry
University of Calcutta