

Acknowledgement

First and foremost, I pay my respect to my supervisor Prof. Manoranjan Singha, Department of Mathematics, University of North Bengal. Without his proper guidance and suggestions from the very early stage of my research work it would have not been possible to complete the thesis. I am extremely grateful for his constructive comments in detail regarding my work. I am extremely fortunate to get opportunity to work under him. I am deeply indebted to my supervisor.

I extend my humble thanks to all the faculty of the department of mathematics, University of North Bengal for hosting and supporting me throughout the period of my research work.

I take this opportunity to convey my gratitude to all research scholars of the department specially Kousik Das, Sima Roy, Ujjal Kumar Hom and to my friends for their timely help, support and encouragement during this period. I am thankful to all those who helped me directly or indirectly in my research work.

Finally, it is not possible for me to adequately express my heartfelt gratitude towards my parents (my father Kanai Lal Sarkar and my mother Rakhi Sarkar), my grand father, late grand mother and elder brother (Netai Pada Sarkar) for everything they have done for me from the very first day of my life. I am also thankful to my wife (Rubi Pal) for her constant support and inspiration during this journey. I can not thank them enough for their love which has been the driving force in every aspects of my life. I would also like to convey my deepest love to my sweet daughter Kathakoli and to all my family members.

January, 2021

Koushik Sarkar

Koushik Sarkar