ACKNOWLEDGMENTS

It gives me great pleasure to express my admiration and gratitude to my Ph.D. supervisor

Dr. Kangujam Priyokumar Singh, Professor, Department of Mathematical Sciences,

Bodoland University, Kokrajhar, Assam, India, for his wisdom, insight, energetic participa-

tion, and unwavering encouragement during the planning and execution of this research. I

also appreciate his meticulous efforts in looking over and polishing the manuscripts, without

which this research would not have been accomplished.

I am highly obliged to Prof. Laishram Ladu Singh, Vice-Chancellor, Bodoland

University, Kokrajhar and Dr. Mukunda Dewri, Head, Department of Mathematical

Sciences for providing all research facilities, assistance, and encouragement.

I am forever indebted to my late parents, Shri. Ph. Kameshwar Singh and Smt.

N. Ibempishak Devi, who left us midway during my Ph.D. research work for their moral

support, motivation, love, encouragement, and blessings without which I would not have

completed this task. I am especially thankful to my wife, Ms. H. Dayapati Devi,

for her patience, love, and encouragement during this journey. Lastly, the understanding,

discipline, and love of my angel, Jodalin Pheiroijam, when her papa was unable to spare

time for her have been a constant source of motivation to my work.

I would like to thanks my beloved friends and research fellows Mr. Ph. Devakinan-

dan Sharma, Mr. T. Alexander Singh and Mr. Jiten Baro for their assistance and

motivation during the research, both directly and indirectly.

I am grateful to the anonymous reviewers who provided feedback on my research papers.

Their recommendations and criticisms were quite helpful in the improvement of my work.

I would like to express my gratitude to DRC members for their helpful recommendations,

encouragement, and support. I am also eternally thankful to Dr. Bivudutta Mishra,

Professor, Department of Mathematics, BITS Pilani, for his comments and assistance dur-

ing my Ph.D. course, which were priceless research inputs.

Finally, I owe and thank the Almighty for his assistance in this endeavour.

Place: Kokrajhar

Date: 6/4/2022

(Pheiroijam Suranjoy Singh)

Department of Mathematical Sciences

ph. 8 y

Bodoland University, Kokrajhar

vi