

ACKNOWLEDGEMENT

Completion of the doctoral dissertation was possible with the support of several people. I would like to acknowledge my sincere gratitude, deepest regards, sincere appreciation and heart-felt thanks to all of them. Firstly, I am extremely grateful to my supervisor Dr. Shyamal Kumar Mondal, Professor, Department of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University, Paschim Medinipur, giving constant valuable guidance, strong mental support and scholarly inputs to carry out research work. This feat was possible only because of the unconditional support provided by sir. A person with an amicable and positive disposition. Sir has always made himself available to clarify my doubt despite his busy schedules and I am very much fortunate to work under the guidance of my research supervisors. Thank you sir, for all your help and support.

Then I would like to express my sincere gratitude to Dr. Dilip K. Maiti, Head of the Department of Applied Mathematics with Oceanology and Computer Programming, Vidyasagar University, Paschim Medinipur, for his encouragement. I am also grateful to Prof. M. P. Pal, Prof. S. K. Roy, Dr. R. N. Giri and Dr. G. Ghorai, Vidyasagar University, West Bengal, India, with whom I have been in close contact from time to time during my research work.

Then I would like to pay sincere respect and gratitude to Dr. B. Das, Assistant Professor, Department of Mathematics, Sidho-Kanho-Birsha University, Purulia, Dr. A. K. Maiti, Associate Professor, Department of Mathematics, Chandrakona Mahavidyalaya, Paschim Medinipur, Dr. B. Mondal, Associate Professor, Raja N. L. Khan Womens College, Paschim Medinipur, for their support, help and encouragement in several ways.

I am also indebted to all non-teaching staff of Department of Applied Mathematics and the authorities of Vidyasagar University, Paschim Medinipur.

I owe a lot to Dr. A. Ojha, Dr. K. Patra, Dr. N. K. Chakraborty, Dr. A. Manna and Dr. P. Panja for their support and encouragement in different ways. I would like to express my gratitude to co-researchers Mr. S. Sen and Miss A. Banu for their continuous support, help and encouragement.

My colleague Mr. Subhendu Bhattacharya has extended his helping hands in a very special way and I gained a lot from him through his personal interaction, his suggestion at various points of my research programme.

I would like to pay sincere respect and gratitude to my parents Bansari Mohan Samanta and Bela Rani Samanta, special thanks to my source of inspiration, my wife, Sayanti Pal Samanta for her continuous support, sacrifice and tiredless efforts. With out her tiredless support, this thesis could not have been given a due shape. I express love to my dearest little daughter Koushiki Samanta. I would like to thank my other family members, whose direct or indirect supports make this journey possible.

Date:

Vidyasagar University

Paschim Medinipur

SRIKANTA SAMANTA

Reg. No.-0644/ Ph.D (Sc) dated 30.12.2013