ACKNOWLEDGEMENT

It is a great pleasure to have this opportunity to express my profound sense of gratitude to Professor B.N. Mandal, Physical and Earth Sciences Division, Indian Statistical Institute, 203, B.T. Road, Calcutta-700035 (formerly, Department of Applied Mathematics, Calcutta University), my research supervisor, for introducing me to a variety of fields in Applied Mathematics, for creating more and more interest in me towards research, for encouraging and inspiring me to pursue the research work with enthusiasm.

I wish to thank Professor M.R. Gupta, Department of Applied Mathematics, Calcutta University, and my former teachers Professor M.L. Ghosh, Dr. P.K. Chaudhuri, Department of Mathematics, University of North Bengal, for their constant encouragement in my research.

I thank the Head, Department of Applied Mathematics, Calcutta University, for providing me the necessary facilities to carry out the research work.

I also thank Mrs. Meenakshi Chatterjee for her help in numerical computations.

Finally, I thank the University Grants Commission, New Delhi, and the Council of Scientific and Industrial Research, New Delhi, for financial support to carry out the research work.

(Prabir Kumar Kundu)