ACKNOWLEDGEMENTS

I express my biggest debt of gratitude to my supervisor Dr. Amrish Kumar Aggarwal for his thought provoking, untiring and patient guidance during the course of this work. Indeed, I could not have completed the thesis without his inspiring suggestions, encouragement, active participation in constructing right models and supervision at every stage of the work.

I am thankful to Dr. Y. Medury (Chancellor and COO), Prof. S. C. Saxena (Vice-Chancellor), Prof. Krishna Gopal (Dean A & R) and Col. Vijay Kumar (Registrar) for their constant support and infrastructural facilities provided for my research work at JIIT.

I also express my deepest gratitude to Prof. Bani Singh, Head, Department of Mathematics, for his valuable and consistent guidance from time to time. I am also thankful to Prof. B. D. Sharma, Prof. Alka Tripathi, Dr. B. P. Chamola, Dr. Sanjeev Sharma and other faculty members of the Department of Mathematics, for their valuable suggestions and encouragement during the course of this work. Special thanks are due to Prof. S. P. Purohit, Department of Physics, for his help through valuable comments and constructive criticism of the findings reported in the thesis.

I would also like to extend my gratitude to the Librarian of Jaypee Institute of Information Technology and his staff for allowing me to use the available resources for my research work.

I wish to record my gratitude to Prof. M.L. Gupta, Advisor, JSSMVP (Noida), Dr. Nagabhushan, Principal, Cmde. B.K. Gupta, CAO, Dr. S. Shirur, Chief Librarian, JSSATE, Noida, for their constant support, encouragement and cooperation during the course of this study. At the very outset, I would like to express my biggest debt of gratitude to Prof. Z. K. Ansari, H.O.D, Department of Mathematics, JSSATE, Noida, for making my motivation level high during this research work. Words hardly suffice the support he provided during the whole course of my study.

I thank all my friends helped me directly and indirectly to achieve some goals in this regard.

My deepest sense of indebtedness goes to my beloved parents and family members for their constant encouragement and moral support during my research work. I appreciate them for making my motivation level high during this research work. Words hardly suffice the support they provided during the whole course of my study.