ACKNOWLEDGEMENTS

It gives me immense pleasure and proud privilege to express my deep regards to my respected Supervisor Late Dr. Om Prakash Singh, Professor & Head, Department of Mathematical Sciences, Indian Institute of Technology (Banaras Hindu University), Varanasi for his support, motivation, constructive criticism and parental affection during my years at Banaras Hindu University. His careful guidance shaped my understanding on research life as well as my chosen field. Without his keen supervision and sagacious guidance it would not have been possible for me to complete the work.

I would like to express my deep sense of gratitude to former heads of the Department of Mathematical Sciences, Indian Institute of Technology (Banaras Hindu University), Varanasi for encouraging me and providing me all facilities to carry out my research work. I acknowledge my sincere thanks to all faculty members of Department of Mathematical Sciences and **other members** of **RPC**, **DPGC** and **DRC** for their constant moral supports, suggestions and encouragement during my research work. I am grateful to all non-teaching staff members of the department for their valuable help.

I am very grateful to **Dr. Manoj Prakash Tripathi, Dr. Vineet Kumar Singh, Dr. Rajesh Kumar Pandey and Dr. Manas Ranjan Sahoo** for their proper guidance and valuable suggestions during my Ph. D. work. Without their provision it would not have been possible for me to complete my Ph. D. work.

I would like to thank my close friends, Dr. Manish K. Singh, Naveen

Jha, Shailendra Tiwari, Ganshyam Prasad, Mahavir Panwar, Harendra

Singh and Shilpi Singh for their continued encouragement, appreciation, stimulating help and criticism.

I pay my respect to Mrs. Manju Singh, wife of my supervisor for her continued support and encouragement, throughout my days at Indian Institute of Technology (Banaras Hindu University), Varanasi. I also extend my heartiest thanks to my beloved mother Mrs. Sarswati Devi and my father Mr. Raj Narayan Singh for their deepest love, endless patience and continued support, shown during the whole tenure of my research work.

I pay my profound gratitude to **my late Supervisor** for supporting me spiritually throughout my life.

Above all, I bow down before the **Almighty** who has made everything possible.

(Chandra Shekher Singh)