Acknowledgements

The woods are lovely, dark and deep, but I have promises to keep, and miles to go before I sleep

At the outset, I wish to pay my most humble obeisance to the ALMIGHTY ALLAH for giving me enough strength and ability to successfully accomplish this research work.

I feel the greatest honor to express my deepest gratitude to my supervisor, Prof. Mohammad Shakir, Chairman, Department of Chemistry, for giving me the opportunity to be a part of his research team. I thank him for his excellent guidance, constructive criticism, myriad useful suggestions, constant encouragement, patience and care throughout this research.

I also sincerely acknowledge Dr. Farha Firdaus for her motivation and continuous support.

Especially, I owe sincere thanks to my dearest friend Dr. Reshma Jolly for her helping hands, standing by me throughout these years and making the rough times more bearable. I pay my special thanks to Dr. Shoeb Khan for his constant optimism, positive thoughts and encouragement.

My seniors also deserve my profound thanks for their inspiring and kind attitude. I take this opportunity to particularly thank Dr. Noor-e- Iram, Dr. Ambreen Abbasi and Dr. Mohd. Faraz. I also sincerely acknowledge my lab mates, Dr. Sumaiya Hanif, Iram, Sumbul, Atika and Hina for providing sincere cooperation.

I am very grateful to Dr. Sumaiya Khan and Fauzia Khan for their invaluable companionship and support in hard moments.

I would like to say special vote of thank to Dr. Mohd. Kamil Hussain and Dr. Sameer Hussain for providing me all the help, wise suggestions and moral support before and during the research. Dr. Mubin Memon needs to be especially thanked for his support in accessing the required journals.

I am indebted to my friends particularly, Dr. Mumtaz, Shama, Shaista and Dr. Swapnil for their unconditional love during the research.

I would like to thank, Mr. Faisal for his warm and endless support that made me feel blessed.
My deepest gratitude goes to my beloved nana, Prof. M.J. Ahsan (Retd. Statistics Department, A.M.U) and my nani, Mrs. Rukhsana Jameel, for their generous blessings, motivation and affection.

I am fortunate enough to have wonderful and caring relatives, Dr. Shamima Sheerin, Sabeena Gauhar, Er. Naved Ahsan, Er. Jawed Ahsan, Nausheen Tarique and Sameen Gauhar for their love and generous concern.

Last but not the least, I am indebted to my beloved father, Mr. Balighur Rahman, who is a constant source of inspiration for me and always accompanied me like shadow. Words cannot define the love and sacrifice of my caring mother and my first teacher, Mrs. Rofaida Sumbul for her unconditional support and confidence in everything that I strive for. I would like to especially thank my protective brother Mohd. Shahzad and lovable sister in law, Rakhshinda Shaheen for cheering me up during tough times. I would also like to extend thanks to my adorable sister, Ms. Shahee Rahman for her care and moral support. I would love to thank my little nephew, Amaan for bringing joy in our home. This research work became possible due to their unflagging love and support.

Special thanks to anybody whose name has been inadvertently left out.

(Nausheen Bano)