Acknowledgement

The culmination of journey that started with a single step and gradually developed into one mighty task. My joy and sense of fulfillment would not be complete without making mention of everyone who offered help and support in one way or another during the entire period of this PhD. Undertaking this PhD has been a truly changing experience for me and it would not have been possible to do without the support and guidance that I received from many people. With great pleasure I would like to express my gratitude to all those who have contributed to this thesis.

This thesis would not have been possible without the encouragement, support, and patience of my Professor, Prof. Arif-ul-Islam, Department of Statistics & Operations Research, Aligarh Muslim University, Aligarh. His continuous encouragement, constructive discussions, important suggestions and necessary corrections of my work have made the success of this work possible. Apart from the subject of my research, I have learned not only how to conduct research but also how to become a respectable person, which will be useful in different stages of my life. I feel lucky to have had such encouraging and thoughtful mentor.

I offer my sincere thanks to Prof. Qazi Mazhar Ali, Chairman, Department of Statistics & Operations Research, Aligarh Muslim University, Aligarh, for providing the requisite facilities for my research. I would also like to thank all the faculty members of the Department for their excellent teachings or help on my research.

In addition, I am grateful to all my friends and colleagues especially Ms Sadia Anwar, Ms Romana Sheikh, Ms Fatima Siddiqui and Ms Sheema Sadia with whom I have had an unforgettable and memorable study life and without whom life would be charmless. Thanks Ms Nida Fakhur for her encouragement and support.

I have also benefited by my friend Mr. Mobin Anjum, his way of approaching problems teach me that nothing is unsolvable in life and for helping me with language corrections of my thesis in its final stages. Thank you for unlimited understanding and true words of endearment. He taught me to question everything around and to read things with critical eye.
Finally, it's my privilege to owe gratitude to my family including Aunt Ms Zarina Arif and parents Mr. Shahab Arif & Ms. Sheila Shahab for their everlasting inspiration, unflagging love, constant encouragement, helpful advice, care, affection and a constant source of support emotional, moral and of course financial during my research program and this thesis would certainly not have existed without them. Thanks to them for forming my vision and giving me all the opportunities in the world to explore my potentials and pursue my dreams.

(Sana Shahab)