ACKNOWLEDGEMENT

First and foremost I want to thank my supervisor Professor Sarbani Giri. It has been an honour to be her Ph.D. scholar. I appreciate all her contributions of time, ideas to make my Ph.D. experience productive and stimulating. The joy and enthusiasm she has for her research was contagious and motivational for me.

I am also thankful to my Co-supervisor Professor G.D. Sharma for his advice, supervision, and crucial contribution, which made him a backbone of this research and so to this thesis.

I am much indebted to Dr.Anirudha Giri for his valuable advice in science discussion and overall support.

Collective and individual acknowledgments are also owed to my colleagues at laboratory, their presence somehow perpetually refreshed, helped, and made my work memorable. My special thanks go to teaching and non teaching faculty of the department, for technical assistances as well as for their advice.

My parents deserve special mention for their inseparable support and prayers. Words fail me to express my appreciation to mom and Dad. Ashok, Kusum and Seema, thanks for being supportive and caring siblings. It is a pleasure to express my gratitude wholeheartedly to Mr. Ajit Singh for the encouragement and willingness to share his bright thoughts with me, which was very fruitful for shaping up my ideas and vision. Finally I would like to thank my fiance Mr. Jayant Singh for his love and support for the successful realization of thesis.

Date: 21st Jan 2013

Supriya Singh