Acknowledgements

I would like to express my gratitude to my research supervisor *Dr. Rakesh Kumar Sharma*, for his inspiring guidance, precious suggestions and encouragement during my research tenure at IIT Jodhpur. His expertise and consistent focus on quality make him a wonderful person to work with. His timely and useful comments throughout the tenure of my research work made this thesis to appear in its present form. My deepest personal regards are for him forever.

I am extremely thankful to *DST-RFBR* (Department of Science and Technology-Russian Foundation for Basic Research) and *IIT Jodhpur*, for providing me financial assistance for attending conferences and other facilities.

I extend my heartiest gratitude to *Dr. Pragati R. Sharma* for her excellent suggestions and creating homely environment. Thanks to *Dr. Ritu Gupta* for sharing her expertise during paper writing. It's worth mentioning, *Dr. Kshema Prakash* and *Library Staff* for providing research papers during this journey.

I would like to thank my labmates, *Dr. Arun, Mr. Ganpat, Mr. Mahesh Sarwate, Mr. Puraram, Mr. Shubham, Mr. Vikas and Dr. Vineet* for setting up the experimental field. Also, my seniors, batch mates, *Kiran, Dharmesh, Devika, Veenu, Nakul,* and my juniors for their motivation and cheerful company during my stay in IIT Jodhpur. I also thank my friends, *Bhawna Pandey, Pankaj Potlia, Amrita, Heena Rathore* for motivation and their help in research work.

I am also thankful to all my Institute's staff members whose names although not mentioned individually here, but have always been ready to understand my problems and help me in all possible manners. I am also thankful to all *Mess* staff members and *Canteen* members for providing good *Food* and *Tea* during stay in IIT Jodhpur.

I am highly indebted to *Apoorva Singh Chauhan and her family*, for their support, love and encouragement. I had a valuable and enjoyable time with them. They proved to be excellent local guardians. This journey would not have been possible without their support.

Words cannot express my gratitude to my father *Mr. Nekiram Sharma*, my mother *Mrs. Darshana devi*, my sister *Mrs. Suman Sharma*, my jiju *Mr. Kamal Sharma* and my brother *Suneel Sharma*. Without their unwavering trust and encouragement, I would have never reached this stage. Their hard work motivated me to work hard, try my best, be strong, and always believe in myself, no matter what. Thanks to *Aayushi* and *Eish* for keeping me happy with their innocent words.

Last but not least I express my gratefulness to all my well wishers who either directly or indirectly helped me in successful completion of my work.

Poonam Sharma

