ACKNOWLEDGEMENT

I would like first and foremost to give praise and thanks to the Almighty God who has prepared me to appreciate the truth and pursue to precede the right path for acquiring few pebbles of knowledge from its seashore as well as giving me the opportunity to express my gratitude to all those who have rendered their service in the realization of this work.

The work presented in this thesis would never have been accomplished without many people's contributions. They are the ones who deserve the credit. I acknowledge my prime indebtedness to my supervisor Prof. G.S. Chauhan for his invaluable exemplary guidance, constant motivation, inspiration and support during my last years of studies at Department of Chemistry, H.P. University Shimla, INDIA. His encouragement, patience and confidence in me have made my Ph.D. study a smooth and enjoyable experience. I am proud to be one of his students. There is no doubt in my mind that his talent, diligence and persistence has meticulously impressed me and will be shining me in the future. It's an honor to work with him.

I owe my thanks to Prof. S.K. Lomesh, Chairman, Department of Chemistry, for providing the necessary laboratory facilities and consistent encouragement, as well as valuable suggestions. I am short of words to express my indebtedness to Prof. I. K. Mehta and Dr. Baljit Singh for their valuable suggestions and inspiring attitude during my study in Shimla. I would also like to extend my gratitude to all the teachers of this department for their kind help to me in every aspect. I also take this opportunity to thank all the non-teaching and library Incharge of the department for their constant help and support.

I would also like to extend my appreciation to all my friends especially to my seniors: Kalpana Chauhan, Amit, Lok Raj, Sunil Banyal, classmates: Reena, Shiwali, Samjeet, Hem Suman and juniors: Rupini, Sapan, Priyanka, Yashwant, Shivani, Umesh, and Vikesh for their friendship and the good moments spent together.
I would also like to express my sincere thanks to Dr. Raju Kumar Gupta (Asstt. Prof.), Department of Chemical Engineering, Indian Institute of Technology KANPUR for his kind assistance at every step especially in the characterization of my hydrogels samples.

My greatest and sincerest debt is due to my mother and late father who played a crucial role in making important decisions in my life and have inspired me to move forward. They support every single decision I made and they are proud of every tiny achievement I earned. They deserve my deepest appreciation and respect.

The love, support and companionship of my mother in law, father in law, didi: Ranju, Rekha, Nisha and Jiju: Aswani, Rajesh and J.C.Thakur along with brother Manoj, bhabhi, and younger sister Monu, for all their motivation and inspiration all through my life is a treasure to be cherished and simply inexpressible.

I would especially like to express my utmost appreciation to my loving husband Dr. Vijay Thakur who has been my constant source of knowledge, motivation and helped me to nurture my dreams as well as prepared myself for the future.

Manjul

Manjul Kumari (M.Sc. M. Phil.)