## **ACKNOWLEDGEMENTS**

At the very outset, I would like to thank the **ALMIGHTYGOD** for showering his eternal blessing on me in my daily life and also to the founder of the Banaras Hindu University, **Mahamana Pandit Madan Mohan Malaviya Ji**, who created this glorious temple of learning.

I express my sincere gratitude and indebtedness to my respected teacher and Supervisor Prof. Vinay Kumar Singh Head, Department of Ceramic Engineering, Indian Institute of Technology, Banaras Hindu University, and co-supervisor Prof. Prabhakar Singh Department of Physics, Indian Institute of Technology, Banaras Hindu University who has been the best possible guide I could ever hope to have. Thank you for believing in me and giving me ample space to grow by myself. Your technical and editorial advice was essential to the completion of this dissertation and has taught me innumerable lessons and in sights on the workings of academic research and in general.

I am sincerely thankful and grateful to **Prof. Devendra Kumar**, (Former Head) and **Prof. Ram Pyare** for allowing me to use the facilities in the department to carry out my research work and for their kind help during the course of my study.

I shall remain thankful to the RPC members and as well as to all my respected teachers Prof. S. P. Singh, Prof. Om Parkash, Dr. Anil Kumar ,Dr. (Mrs.) Dr. Manas Ranjan Majhi, Dr. Pradip Kumar Roy, Dr. Raj Kumar Chaturvedi, Dr. Sudama Singh, Assistant Prof. Ashutosh Kumar Dube, Assistant Prof. Akanksha Dwivedi, Assistant Prof. Mohammad Imteyaz, Assistant Prof. Preetam Singh,

**Dr. Santanu Dash** for their continuous co-operation and valuable suggestions during my research work.

I pay my sincere thanks to all the departmental non-teaching staff Mr. Ram Dhar, Mr. IAKhan, Mr.Krishna Copal, Mr.Bhagmal, Mr. Ashish Tripathi, Mr. Munna Lal, Mr. Kashi, Mr.Mansha Ram, Mr. Varun, Mr. Madan, Mr. Ghan Syham, Mr. Gopal, Mr. Bhaduri, Mr. Pawan, Mr. Shailendra, Mr. Prashant, Mr. Shiv Jatan Mr. Raj Kumar Sharma, Mr. Rajendra Babu and Mr. Lalch Chand for their technical assistance and co-operation throughout my research work.

My special heartfelt thanks go to **Dr. Vijay Kumar Yadav**, Vipul Saxena, Amrendra Rai, Pooja Rai and Aman Singh your support and motivations made this thesis possible. In these years I have fought with you, fought for you and I am lucky to have such helpful seniors like Dr. Abhinav Srivastava, Dr. Hemanth and Dr. Himanshu Tripathi who always advise me right things to do. You have spoiled me and corrected me several times .I owe you all for giving me memories to cherish, of the nights that became mornings, the friends that turned into family and the dreams that turned into reality.

My special thanks go to my roomie Mr. Rohit Singh and my juniors Mr. Nayan, Mr. Rahul Singh, Mr. Pankaj Chaurasiya, my batch mate Preeti Kumari, Neera Singh, Deepshikha Shekhawat for their help, suggestion and continuous support.

Last but not the least; words are incapable of expressing the depth of one's feeling. I am at this juncture facing such a difficulty being in capable of finding the correct words which could aptly express my heartfelt and immense gratitude to my

beloved PARENTS (Mr. Ramaji Yadav and Mrs. Ramdashi Devi),

and my brother Mr. Munikesh Yadav who had been the great

pillars of my life. They always stood beside me through good

times and bad times, supporting financial problem, suffering

and happiness. Without them, I would never have been

succeeded in achieving such a prestigious position.

My special heartfelt thanks go to my wife Reeta Devi, my son

Bhaskar Yadav, Laxmina Kumari and my brother's son, ,

Krishna Yadav and Murary Yadav to always helpful supporting

and to make the peaceful environment for the thesis writing.

**Date:** / /

Place:Varanasi

(Rishikesh Yadav)