## **ACKNOWLEDGEMENTS**

I wish to express my deep sense of respect and personal gratitude to my supervisor **Prof.Devendra Kumar**, Head, Department of Ceramic Engineering, Indian Institute of Technology (Banaras Hindu University). It has been a great privilege to work under his able guidance. His awe-inspiring personality, kind cooperation and constant encouragement have been impetus behind this work. I also want to express my sincere gratitude to my co-supervisor **Prof. Om Parkash**, Department of Ceramic Engineering, Indian Institute of Technology (Banaras Hindu University), who always encouraged me and assisted me whenever it needed.

I am also thankful to the teaching faculty of Department of Ceramic Engineering especially Prof. S. P. Singh,Prof. Ram Pyare and Prof. Vinay Kumar Singh for their kind cooperation during the course of this work. I am also pleased to acknowledge the encouragement of Dr. Anil Kumar, Mr. Amar Nath, Dr. Kalyani Mohanta, Dr. Manas Ranjan Majhi, Dr. Pradip Kumar Roy, Dr. Preetam Singh, Dr. Akansha Dwivedi, Dr. Mohammad Imteyaz Ahmad, Dr. Ashutosh Kumar Dubey and Dr. Santanu Das.

I would also like to extend my heartiest thanks to **Prof. G. V. S. Sastry**, (Dean, Academic Affairs) of Department of Metallurgical Engineering; **Prof. Sandip Chatterjee** of Department of Physics; **Prof. D. Pandey**, **Prof. Rajiv Prakash** (Current Coordinator) and **Prof. Pralay Maiti** of School of Material Science and Technology and **Prof. P. K. Mishra** (Head) of Department of Chemical Engineering & Technology for providing me the research facilities in their respective Departments and School.

I am thankful to all the technical staffs especially Mr. I. A. Khan, Mr. Bhagmal Singh, Mr. Krishan Gopal, Mr. Munnalal, Mr. Kashi Nath Vishwakarma, Mr. Mansa Ram, Mr. Pankaj Kumar Singh, Mr. Ashish Tripathi, Mr. R. P. Singh and Mr. Rajkumar Mishra of Department of Ceramic Engineering for different technical and other assistance during my research work.

I am also thankful to my seniors Dr. Aditya Kumar Singh, Dr. Narmarata

Singh, Dr. Nitish Kumar Singh and Dr. Vijay Kumar Mishra for their kind

cooperation during the course of this work.

I would like to express my deep sense of gratitude to my batch mates **Dr. Pallav** 

Gupta, Dr. Nandini Jaiswal, Dr. Anshuman Srivastava, Mr. B. N. Bhattacharjee,

Mr. Abhinav Srivastava, Dr. Vijay Kumar, Mr. Himanshu Tripathi, Mr. Pattem

Hemanth Kumar, Mr. Arepalli Sampath Kumar, Mr. Vikas Kumar Vyas, and Mr.

Pushkar Jha (Department of Mechanical Engineering) for helping me out and

making stay in IIT (BHU) the best and most enjoyable years of my life.

I am also extremely thankful to my juniors especially Mr. Shukdev Pandey, Mr.

Pankaj Tripathi, Ms. Neera Singh, Ms. Preeti Kumari, Mr. Kumar Saurav, Mr.

Md. Ershad, Ms. Deepshikha, Mr. Viswanath Noolu, Mr. Khagesh and Mr.

**Prashant** for their kind help and support during my stay in IIT (BHU).

I would like to thank Director, Indian Institute of Technology (Banaras Hindu

University) for providing meteaching Assistant Fellowship.

I would also like to acknowledge gratefully Central Instrument Facility

Centre, Indian Institute of Technology (Banaras Hindu University) for providing me

research facilities for carrying work with utmost efficiency.

I am greatly indebted to my mother Dr. Nandini Pandey and father

**Prof. Shriniwas Pandey** (Banaras Hindu University) who blessed me to carry out

my Ph.D. work with most sincerity.

Place: Varanasi, INDIA

(SHREEVATS)

Date: