## DECLARATION BY THE CANDIDATE

I, Sandeep Kumar Yadav, certify that the work embodied in this thesis is my own bonafide work and carried out by me under the supervision of Prof. Ram Pyare and Dr. Manas Ranjan Majhi from "23/07/2013" to "21/07/2018", at the Department of Ceramic Engineering, Indian Institute of Technology (BHU), Varanasi. The matter embodied in this thesis has not been submitted for the award of any other degree/diploma. I declare that I have faithfully acknowledged and given credits to the research workers wherever their works have been cited in my work in this thesis. I further declare that I have not willfully copied any other's work, paragraphs, text, data, results, etc., reported in journals, books, magazines, reports, dissertations, theses, etc., or available at websites and have not included them in this thesis and have not cited as my own work.

Date: Signature of the Student
Place: (Sandeep Kumar Yadav)

## CERTIFICATE BY THE SUPERVISORS

It is certified that the above statement made by the student is correct to the best of our knowledge.

## (Prof. Ram Pyare)

Supervisor
Department of Ceramic Engineering
Indian Institute of Technology
(Banaras Hindu University)
Varanasi- 221005

## (Dr. Manas Ranjan Majhi)

Co-Supervisor
Department of Ceramic Engineering
Indian Institute of Technology
(Banaras Hindu University)
Varanasi- 221005

Head of Département
Department of Ceramic Engineering
Indian Institute of Technology
(Banaras Hindu University)
Varanasi- 221005