

CANDIDATE'S DECLARATION

I, **Deepa Verma**, certify that the work embodied in the present thesis is my own work carried out by me under the supervision of **Dr. R. Manna** and **Prof. G.V.S. Sastry** for a period of six years and nine months from **July 2009** to **April 2016** at the Department of Metallurgical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi. The matter embodied in the thesis has not been submitted for the award of any other degree or diploma.

I declare that I have faithfully acknowledged, given credit to and referred to the research workers wherever their works have been cited in the text and the body of the thesis. I further certify that I have not willfully lifted up some other's work, para, text, data, results, etc. reported in the journals, books, magazines, reports, dissertations, thesis, etc., or available at web-sties and included them in this Ph.D thesis and cited as my own work.

Date:

Place: Varanasi

(Deepa Verma)