

## CANDIDATE'S DECLARATION

I, Vinay Pratap Singh, certify that the work embodied in this Ph.D. thesis is my own bonafide work carried out by me under the supervision of Dr. (Mrs.) Chandana Rath for a period from August 2010 to February 2015 at School of Materials Science and Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi. The matter embodied in this Ph.D. thesis has not been submitted for the award of any other degree/diploma.

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

Date .....

Place: Varanasi

(Vinay Pratap Singh)

## CERTIFICATE FROM THE SUPERVISOR

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

(Dr. (Mrs.) Chandana Rath)  
Supervisor

(Prof. Rajiv Prakash)  
Coordinator