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It is certified that the work contained in the thesis titled “**Renewable hydrogen production by catalytic steam reforming of ethanol**” by **Mr. Ashutosh Kumar** has been carried out under our supervision and that this work has not been submitted elsewhere for a degree.

It is further certified that the student has fulfilled all the requirements of Comprehensive Examination, Candidacy and SOTA for the award of Ph.D. Degree.

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DECLARATION BY THE CANDIDATE

I, **Ashutosh Kumar**, certify that the work embodied in this thesis is my own bonafide work and carried out by me under the supervision of **Prof. Yogesh Chandra Sharma** from July-2012 to July-2017, at the **Department of Chemistry**, 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.

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

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