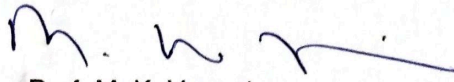


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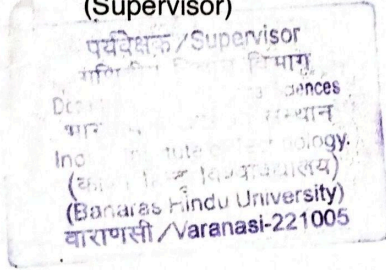
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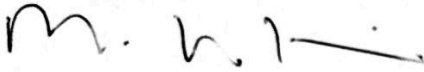
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Department of Mathematical Sciences  
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I, **Promod Sharma**, certify that the work embodied in this thesis is my own bonafide work and carried out by me under the supervision of **Prof. M. K. Vemuri** from **December, 2018** to **February, 2024** at the **Department of Mathematical Sciences, Indian Institute of Technology (Banaras Hindu University), 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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Place: Varanasi

Promod Sharma.

(Promod Sharma)

### CERTIFICATE BY THE SUPERVISOR

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

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Date : 30/4/25

Place : Varanasi

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