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Ref. No.: Ph.D./CS/2024-25/0015

Date: December 23, 2024

Provisional Ph.D. Degree Certificate

This is to certify that **Mr. Suman Mahapatra** submitted a Ph.D. thesis entitled: **"Nuclei Segmentation and Color Normalization of Histological Images: Rough-Fuzzy Circular Clustering to Deep Generative Modeling"**, which has been accepted by the Ph.D. / D.Sc. Committee in Computer Science of the Institute after due process of the thesis examination and that he has successfully completed all the requirements including viva-voce examination held on 17th December, 2024 for the Ph.D. degree of the Indian Statistical Institute.

The Ph.D. / D.Sc. Committee in Computer Science has recommended award of the **Ph.D. degree in Computer Science** to **Mr. Suman Mahapatra** and subject to the approval of the various statutory bodies, namely, the Academic Council and the Council of the Institute, the degree will be awarded to him in the next convocation of the Institute.

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Signature of Convener/ Member
Ph.D. & D.Sc. Committee (Computer Science)