Declaration

I declare that the thesis entitled **"A study on Bianchi Type-III, VI, IX Cosmological Models in Sen-Dunn Scalar-Tensor Theory of Gravitation"**, being submitted by me in partial fullfilment for the award of the degree of Doctor of Philosophy in Mathematics to Bodoland University, is my own work carried out under the supervision and guidance of Dr. Mukunda Dewri, Department of Mathematical Sciences, Bodoland University. Some parts of the thesis has been published in International Journals. This work described in the thesis is original and has not been submitted, in part or full, for any other degree or diploma, to this or any other university.

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Certificate

This is to certify that the thesis entitled **"A study on Bianchi Type-III,VI, IX Cosmological Models in Sen-Dunn Scalar-Tensor Theory of Gravitation"** being submitted by Mr. Derphungshar Basumatary for the award of the Degree of Doctor of Philosophy in Mathematics to Bodoland University, Kokrajhar, Assam, India, is a record of bonafide research work carried out by him under my supervision in the Department of Mathematical Sciences, Bodoland University, Kokrajhar.

The thesis satisfies the requirements of the regulation relating to the degree. Also, considerable parts of the thesis are published in International Journals. The work reported in the thesis is original and has not been submitted in any other university or institute for the award of any degree or diploma.

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Abbreviations

CMBR: Cosmic Microwave Background Radiation

WMAP: Wilkinson Microwave Anisotropy Probe

CDM: Cold Dark Matter

FRW: Friedmann Robertson Walker

EMF: Electromagnetic field

LRS: Locally Rotationally Symmetric

GR: General Relativity

B-D: Brans-Dicke

DE: Dark Energy

DM: Dark Matter

BAO: Baryonic Acoustic Oscillation

PDL: Phantom Divide Line

SF: Scalar Field

ΛCDM: Lambda Cold Dark Matter

EoS: Equation of State

LVDP: Linearly Varying Deceleration Parameter

BVDP: Bilinearly Varying Deceleration Parameter

SEC: Strong Energy Condition

DEC: Dominant Energy Condition

WEC: Weak Energy Condition

NEC: Null Energy Condition