Mathematics of Quantum Computing

(Tentative Title)

A report submitted in partial fulfillment
of the requirement for the degree of

**MASTER OF SCIENCE
IN
MATHEMATICS**

by

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22MMT002

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Abstract

((TODO))

CERTIFICATE

This is to certify that the dissertation entitled **Mathematics of Quantum Computing (Tentative Title)** submitted by **Pranay Raja Krishnan** (22MMT002) towards the partial fulfillment of the requirement for the degree of Master of Science (M.Sc) is a bonafide record of work carried out by him at the Department of Mathematics, The LNM Institute of Information Technology, Jaipur, (Rajasthan) India, during the academic session 2018-2019 under my supervision and guidance.

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Acknowledgements

((TODO)) Date: August 24, 2023 Pranay Raja Krishnan

List of Notations

Unless explicitly defined the following notations are used.

	Symbol	Meaning
	$\subseteq$	subset or equal to
	$\not\subset$	not subset
	$\supseteq$	superset or equal to
	$\emptyset$	empty set
((TODO: Rewrite))	$\in$	belongs to
	$\notin$	does not belong to
	$\displaystyle\prod_{i\in I}$	product over index set I
	$\mathbb{C}$	the set of real numbers
	$\mathbb{R}$	the set of real numbers
	$\mathbb{N}$	the set of natural numbers

Contents

Chapter 1

Qubits

1.1   Qubits

Definition 1.1.1 (Qubit). *A qubit*

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