This is to certify that the project entitled "FUZZY SET,FUZZY LOGIC AND APPLICATIONS" submitted to faculty of science, university of Calicut in partial fulfillment of the requirement of Bachelor of Science in Mathematics is a bonafide record work done by

UNNI MARIA THOMAS

SHAOSMT020

11. Qual

SHL

Under my supervision and guidance during the year 2016-2017

Raidh and of our mady or the der

Krishnamol Ravindran

Lecturer

Department of Mathematics

Sacred Heart College

Chalakudy

I I I I I A DEPENDINAN INTINIAN IN TANDAN

Rev.Sr. Mercykutty Head of the Department Department of Mathematics Sacred Heart college Chalakudy

mary

Chalakudy Date :31-03-2017

25/4/2017 (2AUDON JALON)

This is to certify that the project entitled "GRAPH THEORY" submitted to faculty of science, university of Calicut in partial fulfillment of the requirement of Bachelor of Science in Mathematics is a bonafide record work done by

ANJU ANTONY

SHAOSMT004

CHAN

Under my supervision and guidance during the year 2016-2017

Miss. Maria Jose

Lecturer

Department of Mathematics

Sacred Heart College

Chalakudy

HOD, DEPARTMENT OF MATHEMATICS Rev.Sr. Mercykutty M.M.

Head of the Department

Department of Mathematics

Sacred Heart college

Chalakudy

Chalakudy

Date :31-03-2017

This is to certify that the project entitled "TAYLORS SERIES AND APPLICATIONS" submitted to faculty of science, university of Calicut in partial fulfillment of the requirement of Bachelor of Science in Mathematics is a bonafide record work done by

SONIA ASOKAN

SHAOSMT018

Under my supervision and guidance during the year 2016-2017

Rosmine francis

Lecturer

Department of Mathematics

Sacred Heart College

ChalakudyChalakudy

Rev.Sr. Mercykutty Head of the Department Department of Mathematics

Sacred Heart college

Chalakudy

Date :31-03-2017

This is to certify that the project entitled "A STUDY OF CRYPTOGRAPHY" submitted to faculty of science, university of Calicut in partial fulfillment of the requirement of degree of Bachelor of Science in Mathematics is a bonafide record of work done by

SISMY VARGHESE

CE'CHY

REG.NO:SHAOSMT010

Under my supervision and guidance during the year 2016-2017

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Lecturer

Department of Mathematics

Sacred Heart College Chalakudy

HOD, DEPARTMENT OF MATH TEATICS S. H. COLLEGE, CHALAKUQ IN IN

Rev.Sr.Mercykutty M M

Head of the Department

Department of Mathematics

Sacred Heart College Chalakudy

Chalakudy

Date: 31-3-2017

This is to certify that the project entitled "GROUP ACTION ON SETS" that is being submitted by Ms. NIMMY PAUL., Reg No. SHAPSMT017, in the partial fulfillment of the requirements for the Degree of bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Project Supervisor

Mr.M D Varghese

Associate professor

HOD, DEPARTMENT OF MATHEMATICS

Head of the Department

Ms. Smitha Davis

Assistant Professor

Place : Chalakudy Date : 28/03/2018

External examiner :

1. Sherin Jose T. Assistant professor St Joseph's college lrinjalakuda.

Swingsul

This is to certify that the project entitled "GRAPH COLORING" that is being submitted by Ms DELNA DAVIS Reg No.SHAPSMT011, in the partial fulfillment of the requirements for the Degree of Bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.



Project Supervisor Ms. Nikhitha P.B. Guest lecturer Place: Chalakudy

A de de de al al

HOD, DEPARTMENT OF MATHEMATICS S. H. COLORE, CHALAKUDY Head of the Department

Ms. Smitha Davis

Associate professor

Date: 28/03/2018

External examiner:

1. Sherin Jose T Assistant professor 2. 5j. Joseph's college, Irinjalakuda

This is to certify that the project entitled "STUDY OF SOME METRIC ON \mathbb{R}^2 " that is being submitted by Ms ANUPAMA E.P. Reg No.SHAPSMT007, in the partial fulfillment of the requirements for the Degree of Bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

HOD, DEPARTMENT OF MATHEMATICS S. H. COLLEGE, CHALAKUDY

Nitathe **Project Supervisor** Ms. Nikhitha P. B. **Guest lecturer**

Head of the Department Ms. Smitha Davis Associate professor

Place: Chalakudy

Date: 28/03/2018

1.

2.

External examiner:

Shesin Jose T Assistant Proffessor St. Joseph's Collega, Drivjalabuda

Shar yosu

NEWS

This is to certify that the project entitled "GAME THEORY" that is being submitted by Ms. NITHYA SASI, Reg No. SHAPSMT018, in the partial fulfilment of the requirements for the Degree of bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Project Supervisor

2

Ms. Geethu Simon

Guest Lecturer

HOD, DEPARTMENT OF MATHEMA S. H. COLLEGE, CHALAKI Head of the Department

Ms. Smitha Davis

Assistant Professor

Place: Chalakudy Date : 28/03/2018

External examiner:

1. Shevin Jose T Assistant professor St. Joseph's College, Ivinjalakuda

Avenjoert

This is to certify that the project entitled "TENSORS AND THEIR ALGEBRA" that is being submitted by Ms. ANU DAVIS .K Reg No. SHAQSMT001, in the partial fulfillment of the requirements for the Degree of Bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Project Supervisor

Ms. Jiji Paul A

Guest Lecturer

Head of the Department

Ms. Smitha Davis

Assistant Professor

Place: Chalakudy

Date: 08/04/2019

External examiner : Attorne:

CERTIFICATE

This is to certify that the project entitled "KRONECKER PRODUCT AND MATRIX CALCULUS" that is being submitted by Ms.SANDRA SANTOSH Reg No. SHAQSMT006, in the partial fulfillment of the requirements for the Degree of master of science in mathematics, to the University of Calicut, is bonafide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Project Supervisor

Ms. Geethu Simon

Guest Lecturer

Head of the Department

Ms. Smitha Davis

Assistant Professor

Place : Chalakudy Date : 08/04/2019

External examiner :

1.

This is to certify that the project entitled "COMBINATORICS" that is being submitted by Ms. DEEPA M R Reg No. SHAQSMTOO4, in the partial fulfillment of the requirements for the Degree of bachelor of science in mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Project Supervisor

Ms. Reshma David

Guest Lecturer

Head of the Department

Ms. Smitha Davis

Assistant Professor

Place : Chalakudy Date : 08/04/2019

External examiner 1.



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "LATTICES AND IDEALS" that is being submitted by AMRUTHA PAUL Reg. No: SHARSMT001, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Asst. Prof. Ms. Smitha Davis Head of the Department ریونی) Ms. Geethu Simon Project Guide

Magi P.M.



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "CONSTRUCTION OF REAL NUMBERS USING CAUCHY SEQUENCE" that is being submitted by NAVYA WILSON Reg. No. SHARSMT015, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.



Ms. Smitha Davis

Mr. RAHUL M. RAJU

Assi. Prof. Head of the Department

Ragi P.M.



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "LAPLACIAN ENERGY OF GRAPH" that is being submitted by SAJANA SADANANDAN, Reg No. SHARSMT007, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Ms. Smitha Davis

Asst. Prof. Head of the Department

Ms. Smitha Davis



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "RINGS OF POLYNOMIALS" that is being submitted by GAYATHRI MENON Reg. No. SHARSMT012, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.



Asst. Prof. Ms. Smitha Davis

Head of the Department

Ms. JIJI PAUL A

Mage P.M.



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "EXTENSION FIELD" that is being submitted by CHRISTY SHAJI. Reg. No. SHASSMT007, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Ms.Anjana Thayyil

Asst. Prof. Ms. Smitha Davis

Project Guide

Head of the Department



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "INTRODUCTION TO TOPOLOGICAL SPACES" that is being submitted by ASHLY SHAJAN Reg. No. SHASSMT006, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Asst. Prof. Ms. Smitha Davis

Head of the Department

12/01/2021 Ms. Athira



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "FUZZY SET" that is being submitted by DEVIKA M S, Reg. No. SHASSMT017, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

3/7/2021

Asst. Prof. Ms. Smitha Davis

Head of the Department

Ms. Nima Maria



DEPARTMENT OF MATHEMATICS

CERTIFICATE

This is to certify that this project report entitled "GRACEFUL LABELING OF GRAPHS" that is being submitted by NIGITHA THOMAS Reg. No. SHASSMT011, in partial fulfillment of the requirement for the degree of Bachelor of Science in Mathematics, to the University of Calicut, is bona fide record of the studies carried out by her under my supervision and guidance. This project has not been submitted anywhere for any other degree of any other university.

Asst. Prof. Ms. Smitha Davis

Head of the Department

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Ms. Smitha Davis