COMSATS University Islamabad

Synopsis for MS ☑ Ph.D. ☐

Name: Muhammad Latif Khan Wali	Registration No.: CIIT/FA14-RMT-002/ATK
Program: RMT	Area of Specialization (if any as per approved SoS):
Department: Mathematics	Campus: Attock
Date of admission: 13-04-2023	Date of synopsis submission: 23-09-2023
Proposed Title of the Thesis: (Use title case capitalization): The Gamma Function Γ and Their Properties with Applications.	

Supervisory Committee	
Name and Designation	Role
Dr. Super Visor (Tenured Associate Professor)	Supervisor
Dr. Co Super Visor (Assistant Professor)	Cosupervisor/Member
Dr. Pervais Shah (Lecturer)	Member
Dr. 2nd Sahadfad (Tenured Professor)	Member

Student's Signature: _____

Summary of the Research Malicious software, sometimes known as computer viruses, is a kind of malicious software that infects computers and corrupts data and software. Computer viruses are designed to cause system disruption, present difficult technological hurdles, and cause data loss and leakage. The ability of computer viruses to propagate throughout systems and programs is their most important feature; when a file is opened, they often attach themselves to an executable host file, which then runs their widely distributed programs. Numerous channels, including networks, CDs, email attachments, and external storage devices like USB sticks, can be used by viruses to spread. Initially, computer viruses were usually spread by infected floppy disks since device connections were much less extensive than they are now.

Modeling is a discipline recommended by applied mathematics that requires creative talent in addition to a thorough understanding of a wide range of methodologies. Modeling is the process of translating what is first to be stated in words into numerical terms, using factors as needed. As computers increase our ability to translate concepts and numerical conditions into tangible conclusions about the real and artificial world we live in, scientific modeling is becoming an increasingly important field of study. Here, we will describe the in this mathematical model: susceptible S (t), exposed E (t), infected I (t) and recovered R (t). We will conduct a qualitative examination of expanded model. The qualitative analysis involves model equilibria and equilibria stability.

1. Introduction

This section includes introduction starting from major domain and narrowing, down to specific domain. It should highlight motivation and includes introduction startingincludes introduction starting.

2. Literature Review

Our aim is to derived Hadamard type inequality for h convex function on coordinates. We will introduce $(h-m)-$convex function on coordinates in rectangle in a plane and will derive the Hadamard type inequality connected to it.

Our aim is also to consider non-negative difference of these Hadamard type inequalities as a functional to discuss its various properties for different classes of hâˆ'convex and $(h-m)a$convex function on coordinates.

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3. Problem Statement

After having a basic knowledge about the convex functions. I will read research paper [7] in detail, in which Ozdemir et al. discussed (h-m)-convex function, derived some Hermite-Hadamard inequalities for (h - m)-convex functions and proved some of their properties. And also I will read research paper [6], in which Sarikaya et. al. established a new Hadamard type inequality for h-convex functions. Moreover, I will

4. Research Objectives

After having a basic knowledge about the convex functions. I will read research paper [7] in detail, in which Ozdemir et al. discussed (h-m)-convex function, derived some Hermite-Hadamard inequalities for (h - m)-convex functions and proved some of their properties. And also I will read research paper [3], in which Sarikaya et. al. established a new Hadamard type inequality for h-convex functions. Moreover, I will

5. Research Methodology (or Material and Methods)

After having a basic knowledge about the convex functions. I will read research paper [7] in detail, in which Ozdemir et al. discussed (h-m)-convex function, derived some Hermite-Hadamard inequalities. [1], [2]

References

[1] N. I. Aheizer and N. Kemmer. *The Classical Moment Problem And Some Related Questions in Analysis*. Oliver & Boyd Edinburgh, 1965.

[2] P. Chebyshev. Sur les expressions approximatives des integrales definies par les autres prises entre les Mêmes limites. In *Proceedings of Mathematical Society Charkov*, volume 2, pages 93–98, 1882.

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[3] I. Lütkebohle. BWorld Robot Control Software. `http://aiweb.techfak.uni-bielefeld.de/content/bworld-robot-control-software/`, 2008. [Online; accessed 19-July-2008].

Tentative Schedule

Tasks	July to Sep 2017	Oct to Dec 2017	Jan to Mar 2018	Apr to Jun 2018	July to Sep 2018	Oct to Dec 2018
Literature review	✓					
Problem formulation		✓				
Solving problem			✓			
Paper submission				✓		
Extensions of problem					✓	
Write up and submission of thesis						✓

Details of Completed Coursework

(or attach provisional transcript)

Sr.	**Course Code and Title**	**Credit Hours**	**Grade Points**	**Semester**
1.	MTH525: Advanced Convex Analysis	3	2.9	Fall 2023
2.	MTH623: Long Long Course Title and Good	3	3.1	Spring 2023
3.				
4.				
5.				
6.				
7.				
8.				

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