COMSATS University Islamabad

Synopsis for MS ☑ Ph.D. ☐

Name: Muhammad Latif Khan Wali	Registration No.: CIIT/FA14-RMT-001/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 Assume that α is monotonically increasing on $[a, \infty)$ and $f \in \mathcal{R}(\alpha; a, b)$ for every $b \geq a$. If $0 \leq f_1(x) \leq f_2(x)$ for every $x \geq a$ and $\int_a^\infty f_2 d\alpha$ converges, then prove that $\int_a^\infty f_1\, d\alpha$ converges and we have $\int_a^\infty f_1\, d\alpha \leq \int_a^\infty f_2\, d\alpha$. Let $\{f_n\}$ be a sequence of functions defined on an interval I, and $x_0 \in I$. If the sequence $\{f_n\}$ converges uniformly to some function f on I and if each of the function f_n is continuous at x_0, then prove that the function f is also continuous at x_0.

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 [6], 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

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References

[1] S. S. Dragmoir, C. E. M.Pearce, Selected topics on Hermite-Hadamard inequalities and applications, RGMIA Monographs, Victoria University, 2000. Math. Sic. Marh. Roum., 47(2004),3-14.

[2] M. Alomari, M. Darus, *On the Hadamard's inequality for log convex functions on ccoordinated*, J. Inequal. Appl.2009(2009)13. Article ID 283147.

[3] A. G. Azpeitia, *Convex functions and the Hadamard inequality*, Revista Colombina Mat. 28(1994)7-12.

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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