4-total edge product cordial labeling of some standard classes of graphs

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ID:15008109001

A THESIS SUBMITTED IN THE PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

IN

MATHEMATICS

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In the name of Allah

the most Gracious

the most Compassionate

To my dear parents and respected teachers.

Table of Contents

Abstract

Our task in this thesis is focuses on 4-total edge product cordial (4-TEPC) labeling of some standard classes of graphs and the main aim of the study is to discuss path graph, cycle graph, wheel graph, helm graph, banana tree graph, firecracker graph, gear graph and tadpole graph in the context of 4-TEPC labeling.

Acknowledgements

All praises to **ALLAH** Almighty who created the universe and knows whatever is in it, hidden or evident, and who bestowed open me the intellectual ability and wisdom to search for its secrets. I am greatly thankful to my **ALLAH** Almighty who enable me to discover new things. I revere the patronage and moral support extended with love, by my parents whose financial support and passionate, encouragement made it possible for me to complete my thesis.

I feel highly indebted to the core of my heart to my honorable supervisor, **DR. ZOHAIB ZAHID**, Assistant Professor, University of Management and Technology Lahore and Co-supervisor **DR. SOHAIL ZAFAR**, Assistant Professor, University of Management and Technology Lahore, who very graciously accepted me as a student. They always responded to my feedback and suggestions and guided me with great aplomb and grace. They enabled me to analyze mathematical problems from a multi dimensional vision. I have great respect for their humble attitude. I am fortunate to have the chance to work with them. I could not have completed this task without them ongoing guidance, encouragement and extraordinary abilities help me in my thesis.

finally, I want to put bundle of thanks to my parents **MUHAMMAD IQBAL SIPRA** who always encouraged and supported me in all walks of life. And my siblings that they prayed for the completion of my research work. My joy knows no bounds in expressing my cordial gratitude to my best friends Bilal, Umar, Ali, Asim, Waqas, Fakhir, Aleem, Tariq and Shahzab. Their keen interest and encouragement were a great help throughout the course of my research work.

JAVEED IQBAL

Introduction

One of the most important branches of mathematics is graph theory. It was used by Euler first time in 1736 to solve the problem of Konigsberg bridge. The title *"father of graph theory"* is given to Euler(1701-1783) because of his contributions to solution of geometrical problems (see [7, 9, 10]). *A* graph is the combination of points and lines. Two classes of graphs are named as *labeled graphs* and *unlabeled graphs*. Graph labeling was presented in mid of 1960's by the combination of Ringel's surmise during 1964 and Rosa's paper in 1967. Rosa's research work laid down the foundation of graph labeling. Rosa introduced α-valuation, β-valuation and other labelings in 1967. Glomb gave the name *β-valuation* to graceful labeling in 1972.

Harmonious labeling was presented by Sloane and Graham during 1980. The cahit